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REMOTE CONTROLLED

How to operate IT from half a world away

BY STEPHANIE OVERBY
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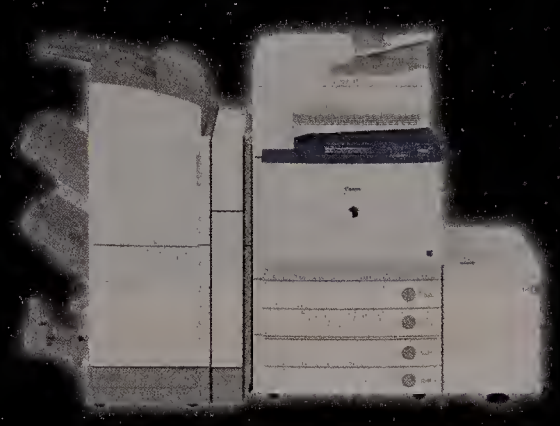

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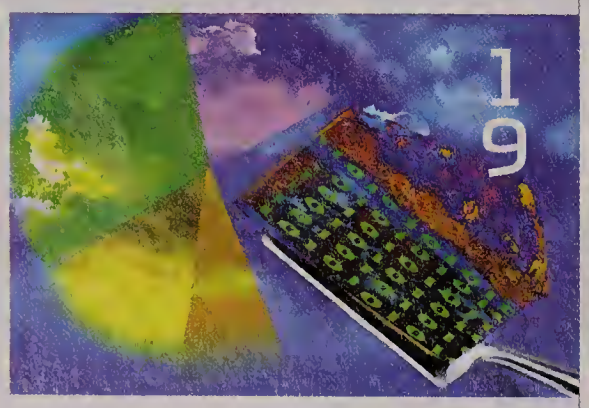

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[RETAIL AND I.T.]

How IT Is Helping Retailers Fight Theft and Expand Globally

Losses from shrink (lost, stolen or damaged merchandise) and transaction fraud continue to haunt U.S. retailers. But new tools and real-time business intelligence are lending a hand to an industry in trouble. Meanwhile, PayPal's IT team has kept e-commerce humming by pushing updates in 15 languages, from French to Polish, simultaneously.

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[ADVICE & OPINION]

WHY DON'T AMERICAN CIOs WANT TO LEAD IN EMERGING TECHNOLOGIES?

Accenture says American CIOs have become followers rather than leaders. Laurie Orlov wonders if this analysis is flawed.

advice.cio.com/blogs/reinventing_it

[POLL]

CIOs STILL FEAR WEB 2.0 FOR THE ENTERPRISE

From blogs to wikis to hosted e-mail from Google, CIOs, on the whole, value command and control over user empowerment.

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Out of Control

Sometimes to stay in control, you have to let go

It's an irony of life that to gain control you sometimes have to cede it.

With hosted solutions, software as a service, outsourcing, offshoring and the "consumerization" of IT, it is becoming difficult—and increasingly pointless—to maintain absolute control over everything. And why would you want to?

CIOs today have more options than ever before to help them run IT. Take remote infrastructure management. Having a team in Chennai handle not just your development work but also your network services, help desk support, server maintenance or, perish the thought, desktop management seems beyond the pale to some CIOs. Yet remote infrastructure management is "something that virtually every organization does every single day," argues Bill Piatt, CIO of the International Finance Corp., in "Remote Controlled," by Senior Editor Stephanie Overby, on Page 28. It's just that "people somehow think there's a material difference if that work is done offshore." There isn't. "Electrons need no visas," says Piatt, who gets his infrastructure support through a combination of onshore, offshore and nearshore resources, both in-house and outsourced. "Anyone can do this work from anywhere."

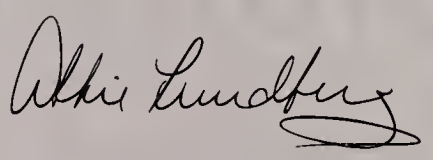
And what about the latest in the IT buzz term, "cloud computing"? Using other people's applications over the Internet or running your own on a third-party's infrastructure allows CIOs to worry less about managing rising and falling demand on computer power and bandwidth and focus instead on driving business value. Bill Snyder reports on what early adopters are learning in his article on Page 19.

Still, such arrangements shouldn't be entered lightly. Issues remain around security, application latency and pricing models for cloud computing, compliance, security and total cost of management for remote infrastructure management.

Some people question whether these trends will ensure the homogenization/commoditization of IT. Others believe they'll bring about a new wave of custom in-house development as people figure out what is best served by a cost/quality equation, and what is a matter for real differentiation.

In a completely different context, author Sylvia Clare writes about letting go in the spiritual sense. "There are really two questions.... What are the kinds of things we want to let go of? and Why should I do this? (i.e., What is the benefit for me?")

Good questions for CIOs to ask themselves in thinking about how to run IT.



Abbie Lundberg, Editor in Chief
lundberg@cio.com

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Who Will Teach?

We need science and technology teachers—and the money to pay them

Bill Gates recently asked the LinkedIn community, "How can we encourage young people to pursue careers in science and technology?" Thousands responded.

Inspired by those responses, I asked industry leaders a similar question, but with this twist: How can we encourage young people to pursue teaching careers in science and technology?

All of us have been influenced by great teachers. My math suggests that one great young science teacher, over the course of a career, has the potential to encourage hundreds, if not thousands, of young people to pursue careers in science or technology. With nearly two-thirds of the 3.2 million teachers in America slated to retire or leave the profession within 10 years, we are going to need plenty of new teachers in the pipeline.

The responses to my query can be grouped in several categories. Topping the list was higher compensation levels for teachers. The question is, Where will we get the money? A new report from Stanford University and the University of Munich suggests the annual GDP of the United States would be nearly 1 percent higher each year if the science and math skills of American students matched skills of other nations. That would add $80 billion every year to our GDP and, yes, that could help raise pay for teachers.

Public relations and media improvements were also mentioned. The media often portrays science and technology professions as geeky and male-dominated. That stereotype must end. And what must start is true leadership from Washington calling for more science and technology educators, not unlike the call to join the Peace Corps in 1961.

A third grouping of responses suggested recruiting "graybeards" with undergraduate degrees in science and technology to teach in America's classrooms. The idea is similar to IBM's "Transition to Teaching" program and programs at Teach for America.

One response, perhaps my favorite, shared an ancient Sanskrit saying, "Gurur Devo Bhava," meaning "Teachers are respected as God."

All in all, a good collection of suggestions. Those interested in getting a PDF version of the Stanford GDP report, send me an e-mail.

Gary J. Beach

Gary Beach, Publisher Emeritus
gbeach@cio.com

PHOTO BY WEBB CHAPPELL

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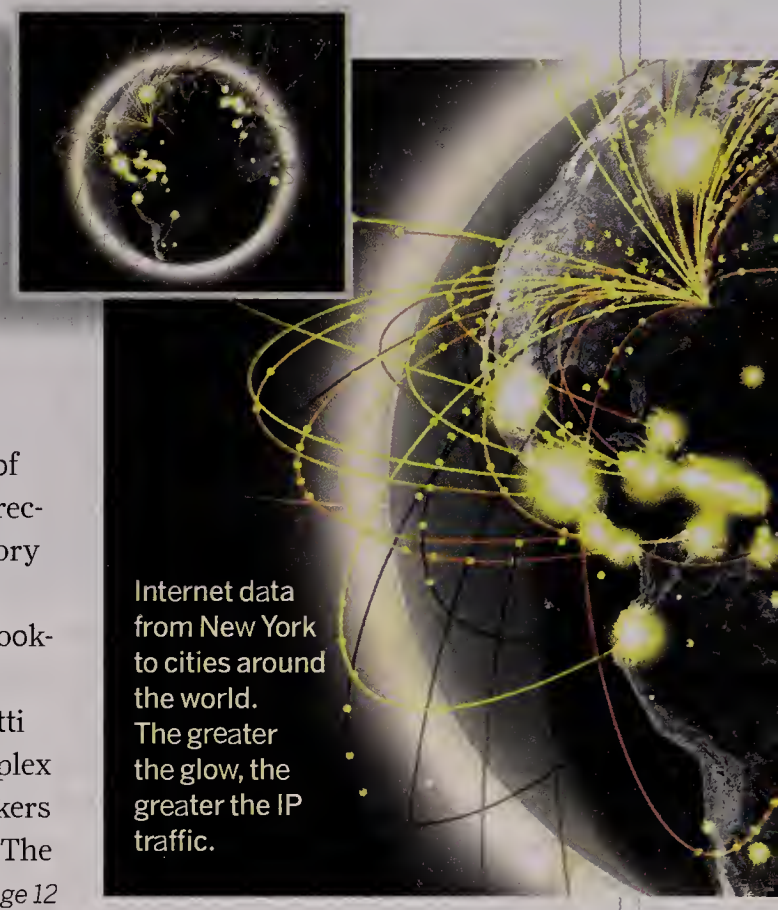


Internet data from New York to cities around the world. The greater the glow, the greater the IP traffic.

TELECOM New York City is known as both the epicenter of global business and the city that never sleeps. And, thanks to a new research project led by MIT's Senseable City Laboratory, anyone can see visual representations of why those reputations are true.

The project is called New York Talk Exchange, and it shows the daily telecommunications traffic coming into and out of New York City. That traffic data, a combination of Internet protocol (IP) and voice communications, is represented on three large visualizations that hang in the Museum of Modern Art exhibition "Design and the Elastic Mind." They also appear on the Senseable website.

The project "reveals how New York connects with the network of global cities," says Carlo Ratti, director of the Senseable City Laboratory and associate professor of urban studies and planning at MIT. In looking at the city's data flows, which come from AT&T's networks, Ratti and his team discovered the complex and varied connections New Yorkers make with the rest of the world. "The pulse of the

Continued on Page 12

It Pays to Track Your Reputation Online

CAREER Take a good, hard look at what you find the next time you get that urge to Google yourself. What others have to say about you online—or the pictures or videos that they post—could come back to haunt you professionally.

Eighty-three percent of executive recruiters use search engines to learn about candidates, according to an ExecuNet survey. Forty-three percent of recruiters have eliminated candidates for jobs based on information they found about the candidates online.

With those statistics in mind, it behooves you to conduct regular searches of your full name on the Web to find out what, if anything, is being said about you, say Kirsten Dixson and William Arruda, personal branding consultants and authors of *Career Distinction: Stand Out by Building Your Brand*. Managing your reputation is an absolute necessity in a world where it's easier than ever to post or find positive and negative information about an individual.

If you find negative information, Dixson and Arruda recommend trying to have it cleaned up or removed. "If you can't," they say, "add your own positive content alongside it and let readers draw their own conclusions."

And while you're messing about online, establish a profile on a social networking site. Sites like LinkedIn, Facebook and Ziggs are excellent ways to create or expand one's online identity and network at the same time, say Dixson and Arruda. If used appropriately, they can also provide you with an opportunity to put your best foot forward online with recruiters and potential employers.

"To get the most out of these sites, make sure your content is consistent across all of your profiles and matches your résumé," they say.

–Meridith Levinson

PHOTOS COURTESY OF MIT

Microsoft Thinks green

ENERGY Microsoft will release best practices for administrators running data centers, focusing on energy-saving strategies the company is implementing in its own operations.

Those tips will cover issues such as how to pick a good data center site, how to deal with heat and manage power consumption, CEO Steve Ballmer said last month at the Cebit trade show in Hannover, Germany.

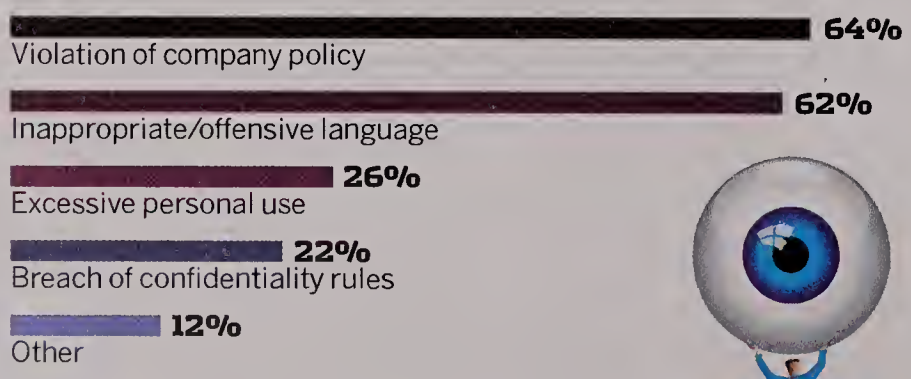
The move is in response to growing concern over the release of carbon dioxide, a byproduct of burning fossil fuels to create electricity. In addition, power demands are ever-increasing, Ballmer said. "Information technology is one of the most rapidly growing power consumers on the planet. We think we have a real responsibility...to reduce power consumption by the IT industry." (Read a related story, "A Little Bit Green," Page 40).

Ballmer said Microsoft has studied how to engineer its products to consume less power. For instance, Windows Vista, its latest operating system, consumes 3 watts per hour in idle mode, versus 100 watts per hour for Windows XP. In some configurations, Windows Server 2008, the company's next-generation server, uses 40 percent less power than Windows Server 2003.

To increase its ability to offer hosted applications, Microsoft has built data centers in Quincy, Wash., where there is cheap, hydroelectric power, and in Dublin, Ireland, Ballmer said. Emerging innovations could reduce power consumption in data centers by a factor of five, he said. "We've tried to be a pioneer...in our own data centers," Ballmer said. "These new data centers put us on a path to be among the most power-efficient and ecologically sound data centers in the world." *–Jeremy Kirk*

Every **Move** You **Make**

WORKPLACE Nearly a third of employers fired employees for abusing corporate e-mail, according to the 2007 Electronic Monitoring & Surveillance survey. The reasons:



SOURCE: American Management Association and The ePolicy Institute

Wired World

Continued from Page 11

planet, with its different time zones," he says, "is also the pulse of New York."

Globe Encounters is the first visualization. It uses 3-D, real-time animations and glowing virtual lines to illustrate New York's connections to other cities—a sort of "globalization in real time," according to the team. The greater the glow, the greater the amount of IP traffic. The second, called Pulse of the Planet, reveals how those connections change over the day. It shows how the city follows a 24-hour schedule, as if it were always awake to connect to the rest of the globe, according to the project overview.

The last visualization, The World Inside New York, examines the five boroughs, demonstrating how global connections vary by neighborhood. The team calls this "globalization from the bottom." For example, Mumbai ranks 24th as the origin of calls into Manhattan and 11th in calls into Queens. Toronto is a main destination for calls out of Manhattan but accounts for just 1 percent of calls from the Bronx. Columbia University professor Saskia Sassen notes in the project catalog, "The striking piece of evidence coming out of this project is that global talk happens both at the top of the economy and at its lower end."

Using British Telecom data, the team also compared the relative connectedness of business rivals London and New York. The data shows New York has more reach into Asian and South American business hubs, such as Beijing and Bogotá. London reaches more into Europe and the U.S.

The team will also explore how the structures of global cities evolve, the dynamics of globalization and whether more data transfers across the globe affect travel. The exhibit runs until May 12.

–Thomas Wailgum

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Cutting the Cord

MOBILE APPLICATIONS The number of U.S. companies using mobile data applications for business purposes is now 94 percent, up almost 20 percent in 2007 from the previous year, according to market research firm In-Stat. And while that growth is expected to slow in the coming year, the company predicts spending will continue to grow by 30 percent each year through 2012.

The last 10 years have seen businesses nearly double their usage of mobile business applications each year, driven primarily by basic horizontal applications, In-Stat says. But as they reach the saturation point for such products, attention will turn to the slower-to-implement vertical applications.

Horizontal wireless applications—like those for e-mail, Internet access, instant messaging and personal information management (PIM)—are by far the most widely used since they prove the simplest to deploy and serve a variety of employees, according to In-Stat. A survey the firm conducted last year showed 88 percent of companies used wireless e-mail, 84 percent provided wireless Internet, 65 percent employed mobile instant messaging applications and 60 percent managed business information, such as calendars and contacts, via mobile devices.

"As business users approach saturation for horizontal mobile data applications, most of the growth potential remains for vertical market applications," specialized for sales forces, for example, said Bill Hughes, In-Stat principal analyst, in a release.

In-Stat is also reporting that the global smartphone market is expected to increase by an average of 33 percent per year during the next five years, while the number of business users with corporate phones jumped 34 percent from 2006 to 2007.

–Al Sacco

BI: Retailers' No. 1 Tech Priority

BUSINESS INTELLIGENCE All the frothy hype over business intelligence tools is justly warranted in the retail industry, according to a recent report from the Aberdeen Group.

The report's findings, that BI tools can "build customer knowledge, improve visibility across the enterprise and drive sales," are based on survey results from more than 200 retailers. Nearly 70 percent of the retailers currently use BI tools, and 26 percent plan to adopt a BI system.

Aberdeen defines BI not as a single reporting or analytics application applied to a specific data set. Rather, BI "involves the ability to access information affecting the business, often as the data is created," write analyst Jeanette Keene and research director David Hatch. "This can involve one or a multiple set of data sources, and can affect one or many sets of decisions, actions and people."

The top reason retailers implement BI systems is "to quickly react to changes in customer demand." They also say they need to be more predictive with forecasting capabilities (38 percent) and improve customer loyalty and retention (also 38 percent). Aberdeen's report offers three suggestions to help retailers jump-start their BI efforts.

1. Go beyond segmenting customers. BI can help separate profitable customers from unprofitable ones. "Retailers that can identify and segment these groups are able to shift awareness and tactical marketing spend toward more profitable activities," says the report.

2. Prioritize real-time alerts and updates. "Consumers have quickly learned to utilize all of the tools at their disposal to educate themselves about products and prices," the researchers write. "Do not let a lag in data access cause lost opportunities."

3. Train end users. BI cannot be fully utilized if users "are not adopting the tools and using them to their fullest potential."

–Thomas Wailgum

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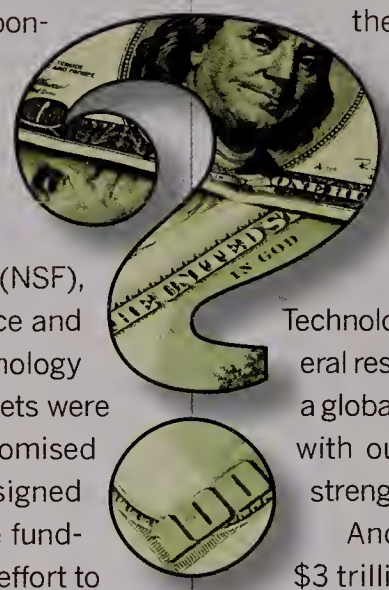
TECH CEOs TO CONGRESS: **Where's R&D Funding?**

POLITICS Congress should keep the promises made in the America Competes Act of 2007 and restore funding to three federal agencies that conduct basic research, a group of tech CEOs said.



The Technology CEO Council, a group responsible for public policy advocacy for the IT community consisting of the CEOs of IBM, Dell, Intel, Hewlett-Packard and six other companies, sent a letter to congressional leaders in February urging a funding increase for the National Science Foundation (NSF), the Department of Energy's Office of Science and the National Institute of Standards and Technology (NIST). The agencies' fiscal year 2008 budgets were a combined $918 million short of targets promised in the America Competes Act, which was signed into law last year. It was expected to double funding at the three agencies over 10 years in an effort to improve U.S. science and technology programs.

According to the American Physical Society, an advocacy group for physicists, research funding fell short of promised levels by 91 percent in the DoE's Office of Science, 77 percent at NSF and 70 percent at NIST.

The funding shortfalls at the DoE's Office of Science will cause universities and research labs to lay off about 550 scientists, engineers, technologists or support staff, the letter from the Technology CEO Council said. Scholarships and research grants for promising science students as well as the agencies' ability to train math and science teachers for grade schools and high schools will also be affected.

Bruce Mehlman, executive director of the Technology CEO Council, stressed that funding for federal research is important for U.S. competitiveness in a global economy. "American competitiveness starts with our innovative capacity, our infrastructure's strength and our ability to grow and retain talent."

And according to Mehlman, "In the world of $3 trillion budgets," finding the money should not be difficult. "So many people have given great, soaring speeches that they're for competitiveness and they're for innovation," he said. "But you're not for it if you don't fund it."

–Grant Gross

How EDS Became a CIO Launch Pad

ON THE MOVE Like GE and PepsiCo, EDS is a sprawling company that's fertile ground for sourcing candidates for CIO positions. Since December 2007, at least three companies have found their CIOs at EDS:

United Airlines plucked **Keith Halbert** from his CIO gig at the services provider.

A.H. Belo Corp. lured **Matthew Bieri**, VP of global delivery for EDS's human resources outsourcing organization.

IT outsourcer CompuCom hired **Laurie Simon**, who worked for EDS as a client delivery executive responsible for managing mobile communications and help desk support.

Breck Ray, president of executive search firm Ray Partners, says the company's size, scope and technology expertise attract corporate recruiters and headhunters who are seeking IT leaders. EDS employees often focus on an industry, so they develop expertise in that sector, says Ray. Thus when an energy company, for example, seeks an IT exec with deep industry expertise, EDS is on its radar.

What's more, since EDS manages its clients' technology, employees are exposed to many hardware and software vendors, says Ray. Thus, they combine a solid understanding of various technologies with their industry expertise, which makes them attractive candidates. EDS also has good training and leadership development programs. The company's acquisition of consultancy The Feld Group in 2004 further filled its ranks with CIO talent.

Also key is the openness of EDS professionals to recruiters' calls. "You have a receptive audience when you call," says Ray. "Typically, companies are prime recruiting ground when their stock is way off or they've been through massive turmoil, which EDS has gone through."

–Meridith Levinson

CIO.com Read Meridith Levinson's **MOVERS AND SHAKERS** blog for the latest moves. Find it at **blogs.cio.com**.

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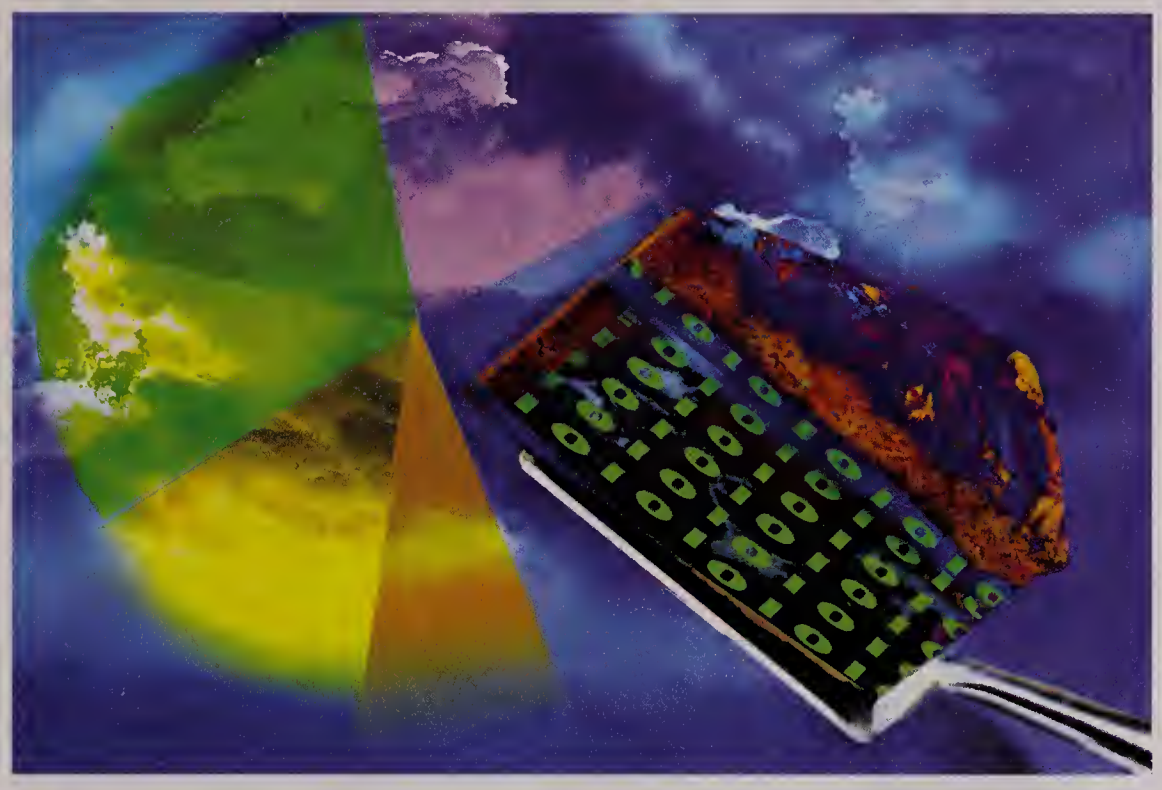

Cloud Computing: Not Just Pie in the Sky

Goodbye big data centers, hello applications running in the cloud? Behind the hype around cloud computing, CIOs are exploring when and how to use this option wisely.

BY BILL SNYDER

DATA CENTER | Writer Nicholas Carr will earn the enmity of even more tech veterans with his newest prediction: Cloud computing will put most IT departments out of business. "IT departments will have little left to do once the bulk of business computing shifts out of private data centers and into the cloud," Carr writes in his new book, *The Big Switch: Rewiring the World, from Edison to Google*.

An exaggeration? Of course. But there's a kernel of truth beneath the hyperbole. Cloud computing, once a concept as murky as its name suggests, is becoming a legitimate emerging technology and piquing the interest of forward-looking CIOs. Out-of-control costs for power, personnel and hardware, limited space in data centers, and above all, a desire to simplify, have encouraged significant numbers of startups—and a still small number of enterprises—to move more infrastructure into a third-party-provided cloud.

"The concept of cloud computing makes enormous sense," says André Mendes, the CIO of Special Olympics. "It helps the CIO abstract another layer of complexity from the organization and concentrate on providing the higher levels of value." Mendes, who's now moving much of his data center outside his enterprise via conventional hosting

ILLUSTRATION BY ANASTASIA VASILAKIS

services, says he expects to move toward the cloud in the next few years.

Why now? Enabling technologies, including nearly ubiquitous bandwidth and widespread server virtualization, plus the lessons learned from the rapid ascent of software as a service (SaaS), are encouraging CIOs to think further outside the data center.

To be sure, it's still the early days of cloud computing. Concerns around security and application latency, to name two of the issues most commonly raised by the IT community, are real. Also, providers have not fully formulated their business and pricing models, which is one reason that some CIOs who did not reap the desired ROI from SaaS now look at cloud computing skeptically. Yet another issue: transparency. Entrusting mission-critical applications and data to a third party means the customer has to know exactly how cloud providers handle key security and architectural issues. How transparent providers will be about those details remains an open question.

A New Level of Scalability

Unlike many "next big things," cloud computing didn't just spring fully formed from the brain of a Silicon Valley whiz kid. "It's the logical corollary of what happened in computing over the last 30 years. In a sense, it's a return to the past; time-sharing on steroids," says Mendes.

True enough, but it's easier to get analysts and IT insiders to talk about the features and goals of a cloud than it is to pin down an exact definition. Keep in mind, too, that different vendors will spin cloud computing differently. Salesforce.com's vision of the cloud looks much like the SaaS you know today; IBM's vision includes mash-ups of massive customer data sets on the fly.

"The cloud is basically a combination of grid computing, which was mostly about raw processing power, and software as a service," says analyst Dennis Byron of Research 2.0. "In effect the cloud is network virtualization."

Dennis Quan, CTO of IBM's High Performance On Demand Solutions, says, "We've designed the cloud around virtualization. You have a data center with many servers and they are all turned into virtual machines."

One difference from the now familiar, multi-tenant SaaS model, in which numerous clients access a provider's application: Cloud computing environments also allow the customer to run his own applications on the provider's infrastructure.

> "Cloud computing helps the CIO concentrate on providing higher levels of value."
>
> –André Mendes, CIO, Special Olympics

At the provider level, the goal is to dynamically assign computing workloads as customer jobs come in, notes William Fellows, an analyst with The 451 Group. That approach helps the vendor maximize its resources and lets the customer ask for more computing power on the fly. That's a key point. A big goal of cloud computing, whether IBM's Blue Cloud or Amazon's EC2 (Elastic Cloud Computing), is rapid scalability.

But elasticity is probably a better term, says Barney Pell, founder and CTO of Powerset, a San Francisco-based startup company building a natural language search engine. By elastic, Pell means the ability to stretch out when needed—and then snap back. His company is attempting to index an enormous chunk of the Web, and that compute-intensive task goes on most of the time. The work involves major spikes by users that would exceed the company's normal computing capacity.

Rather than buy enough servers and other infrastructure to meet peak needs, Powerset became an early customer of Amazon's EC2 and S3, Amazon's related storage service. Powerset pays for the resources as it uses them, freeing up significant amounts of cash, Pell says.

Pell suggests that IT executives considering cloud services start by closely examining which resources their data center uses all the time—and which are needed only during periods of peak demand. What's more, the use of an elastic service gives IT time to establish a baseline, that is, the minimum level of resources needed to run the business at all times.

Similarly, groups or departments within enterprises often have the need to prototype or handle a specific project but don't have the budget or desire to buy the needed infrastructure. Indeed, IBM itself is using its internal cloud to supply the resources needed for prototyping new applications or services, says Quan. Not every project uses that internal cloud, but more than 100 have, he adds.

The New York Times, for example, used Amazon Web Services (EC2 and S3) to generate PDFs of 11 million articles in the paper's archives in less than 24 hours using 100 instances of EC2, instead of buying hardware for the project, Derek Gottfrid, senior software architect for the *Times*, wrote in his blog.

Flexibility Up, Costs Down

For some enterprises, cloud computing can help a CIO tackle several problems at once, as was the case for Schumacher Group CIO Doug Menefee. Upon joining the Lafayette, Louisiana-based company three years ago, Menefee had to tackle a disaster-planning gap and find new ways for IT to keep up with rapid business growth.

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Mexico, Schumacher staffs emergency rooms for 150 hospitals across the U.S. It only takes a glance at the map to see how close Schumacher came to being hit by hurricanes Katrina and Rita. "It was an eye-opener," says Menefee. "We didn't have disaster recovery and business continuity capabilities. Had our headquarters gone down, it would have taken all of the regional offices down with it."

At the same time, Schumacher's IT group was struggling to keep up with the demands of a company whose revenue was growing 20 percent to 30 percent a year—even faster when measured by the number of complex contracts it needed to manage. "We can go out and turn on five or six hospitals tomorrow. We need the flexibility to move data quickly," Menefee says. But setting up and provisioning new regional offices was taking months.

As Menefee settled into his new job, he realized that running at least some of his applications outside Schumacher's data center would solve a number of problems. Menefee decided to combine a custom application built by Apptus—an ISV—with a Salesforce.com CRM application to handle thousands of contracts among his company, the hospitals and the doctors. Those moves, which involved about half of the company's IT infrastructure, avoided the expense of his hiring an additional three to five full-time IT staffers, at a cost of $40,000 to $80,000 each a year, plus a large outlay for additional hardware, he says.

Security, of course, poses an issue. "Single sign-on service and password management were the biggest pain points," says Menefee.

While very upbeat about his experience in the cloud, Menefee says his data center isn't going away anytime soon. The company deals with very large image files and charts scanned into the system, which means that latency becomes an issue. So for now, that type of work stays in house. There's also "a beast" of a legacy billing system to deal with that wouldn't fit well into a hosted environment, he says.

Is Schumacher utilizing cloud technology, or is it really SaaS? "There's a lot of gray area around that term [cloud computing]," Menefee says. "But for me, the idea of us using an infrastructure that isn't our own, that is, managed outside, makes it a cloud. But I'm not looking to be part of a trend. I find a problem and look for a solution."

> "Single sign-on service and password management were the biggest pain points."
>
> –Doug Menefee, CIO, Schumacher Group

Control Fears

Security, latency, service levels and availability are issues that rightly concern IT executives when the talk turns to cloud computing. Vendors will have plenty of work to do in the next few years to resolve them to IT's satisfaction. But there's also a less concrete, but important, issue on the cloud computing table: culture.

"Some people still view this as a loss of control," says Adam Selipsky, Amazon's vice president for product management and developer relations. "They're starting to come to terms with the idea of data leaving their four walls, but we're not there yet."

Indeed, when asked what advice he has for other CIOs considering cloud computing, Schumacher's Menefee says, "Your traditional IT staffer is going to be resistant. Enlist the guys who have experience developing for the Web."

More caveats: Although it's not a common issue, some applications call for specific hardware. If that's the case, says Forrester principal analyst James Staten, forget about running the application in the cloud. And database performance in the cloud can still be problematic, says John Engates, CTO of Rackspace, an IT hosting company based in San Antonio, Texas.

On the other side of the ledger, though, CIOs will find benefits from cloud services, including more scalability, faster deployment times, and a simpler data center. There's no rush, but while you keep your feet on the ground, it's time to take a peek into the cloud. CIO

Bill Snyder is a California-based freelance writer. To comment on this article, please go to *www.cio.com/article/192701.*

Top Three Reasons IT Fears the Cloud:

Almost nonexistent SLAs. Few customer references. Security concerns.

SOURCE: Forrester Research, "Is Cloud Computing Ready For the Enterprise?"

Cloud Jargon, Explained

Want plain English help with the cloud hype? See **CLOUD COMPUTING: WATCH OUT, IT'S RAINING JARGON** at **http://advice.cio.com/laurianne_mclaughlin/cloud_computing_watch_out_it_its_raining_jargon.**

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MATTHEW PODOWITZ AND BRIAN TRETICK

Compliance and the CIO

There are more government rules for companies to follow and more legal risks for not doing so. Here's how to design and implement an effective compliance program.

With compliance emerging as one of today's most prevalent business issues, multiple corporate functions are converging to address quality, risk and overall compliance management. This convergence, though arguably more efficient, may not be an intuitive state for policies and processes traditionally created in silos. Nor is convergence always a logical process for the people who operate, manage and implement those policies and processes.

As the visibility of compliance continues to rise, so too does the importance placed on information technology and the CIO. IT's mandate has expanded post Sarbanes-Oxley (Sox) beyond the traditional charge of keeping the lights on and the company out of trouble. IT and the CIO now share responsibility for making the business better. Ironically, one of the most "siloed" of functions has become one of the most well-positioned to do just that.

A Look at the Compliance Landscape

Understanding IT's evolving role requires understanding the compliance landscape. Every company operates with rules and regulations, which vary by industry, geography, size or other factors. Historically, compliance criteria have centered on financial or environmental issues. Many were created and implemented in response to a particular issue; likewise, they may have been executed and monitored at the business-unit or departmental level via spreadsheets or other manual means.

As the regulatory environment changes, so do the requirements for automated, repeatable controls and processes around the classic information compliance drivers—internal controls over financial reporting, controls to protect and govern the use of personal information, protection of intellectual property, records management and e-discovery rules. What's more, a set of standards are arising that are global in scope, with Sox in the U.S. spawning similar legislation in Japan, Canada, Australia, France, Italy and the Netherlands. The U.K.'s Finan-

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cial Services Authority's foray into outcomes-based regulation has also sparked interest.

Legal risk and the implications of noncompliance are also expanding, with consequences ranging from significant fines to jail time for executives. Information itself has become a regulated asset, with specific criteria for its protection, privacy, use and retention. Changes to the rules regarding document retention are making it harder for companies to mount effective litigation defense.

Inefficient processes, the complex regulatory and business environment, and a talent shortage are placing unprecedented demand on systems and procedures. The "typical" organization has core compliance accountabilities for multiple functions and business units. Against this backdrop come the growing expectations of stakeholders. They want effective compliance risk management and transparency in their strategies, a reasonable return on the significant investments made in information technology, plus measurable means for improving the business overall.

The Convergence Conundrum

The CIO can leverage IT capabilities to achieve sustainable compliance by implementing an effective, integrated program with built-in components to align and coordinate related functions, processes, and activities as well as provide oversight and risk coverage. That, however, may be easier said than done.

To see how far convergence has gone and how companies operate in that environment, Ernst & Young chats with clients and conducts formal studies and surveys. One survey focused on the financial services industry, which operates in a highly regulated environment. It found most companies were in the early stages of convergence and their activities were driven by short-term objectives such as improving efficiency and reducing costs. Common barriers included the tendency toward siloed infrastructures and people's natural resistance to change, particularly around the highly sensitive areas of risk management and compliance.

A Unified Approach

For advice about creating a framework for **COMPLIANCE** read **Tear Down that Silo** at **www.cio.com/article/142750**.

CIO.com

So who can help? With information as the common denominator, it's easy to see IT and the CIO taking on new responsibility.

Leading companies are focusing resources on how to better integrate compliance enterprisewide as a part of business operations and decision making. Companies that once invested in compliance programs because they had to are beginning to invest because they want to. They see the value proposition in technology-enabled compliance measures that also improve business processes and performance. One driver of this new mind-set is IT.

IT is expert at facilitating business process improvement due to its role in Sox compliance, ERP implementation or other transformational projects.

IT is often the expert at facilitating business process improvement because of its role in Sox compliance, ERP implementation or other transformational projects. This gives the CIO a seat at the executive table when compliance strategy is planned and strategic business goals are set.

One way IT can help is by cataloging what rules, regulations and laws specifically apply to the company. It can also create a robust infrastructure and a repeatable mechanism for identifying and tracking any overlaps, inconsistencies and conflicts. Finally, IT is unique in its ability to move well beyond the data center in response to its expanded mandate to create value, rationalize costs and manage risk for the enterprise.

IT can also identify the state of the company's compliance controls, processes and capabilities. Many existing IT investments—ERP systems, reporting systems and controls monitoring systems implemented to support Sox compliance—can be leveraged to improve compliance.

The objective of risk convergence is to establish an integrated approach and a consistent set of processes that reduce redundant control activities, eliminate duplication in the business units, cut costs and support strategic decision making. Convergence can reduce compliance gaps and risk management fatigue in the business units. It can facilitate a risk and control model that is more efficient and effective in supporting business needs, responding to regulatory change and addressing demands for more granular risk-related disclosure. Compliance mandates come down to issues of integrity, security, confidentiality and access.

IT can establish itself as the center of excellence within the business for facilitating compliance and business process improvement by expanding its charter and leveraging its potential for value delivery. Risk convergence, although challenging, is possible. Choosing this path will create a flexible, efficient, sustainable risk management framework that supports today's business requirements and those of the future. CIO

Matt Podowitz is an executive director in the Risk Advisory Services practice of Ernst & Young and is the firm's global IT effectiveness leader. Brian Tretick is an executive director in the Risk Advisory Services practice of Ernst & Young. To comment on this article go to *www.cio.com/article/170000*.

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The vendor's location is one of the last considerations when International Finance Corp. CIO **Bill Piatt** contracts for infrastructure support.

Remote Controlled

Remote infrastructure management outsourcing—the hot buzzword for offshoring IT operations work—is big business for India's IT services providers and a competitive imperative for U.S.-based outsourcers. But is it right for you?

BY STEPHANIE OVERBY

BILL PIATT, CIO OF THE INTERNATIONAL FINANCE CORPORATION (IFC), sits in his Washington, D.C., office just three floors above the company's primary data center. But for all he cares, that server room could be halfway around the globe. After all, many of the people who manage that infrastructure are. Satyam Computer Services provides global network monitoring, database administration and mail server maintenance from a network operations center in Chennai, India.

"Why would anyone think this is unusual?" wonders Piatt, who, in the past, worked for IT services providers Unisys and CGI and was CIO for the General Services Administration. "All infrastructure is managed remotely. No one's ever sitting inside your data center anyway, even if it is in your basement. Admins are working from a different building or a different city or, if it's a weekend, logging on from home. Remote infrastructure management is something that virtually every organization does every single day. But people somehow think there's a material difference if that work is done offshore."

In fact, the offshore delivery of infrastructure management services—from network services and help desk support to server maintenance and desktop management—is becoming more mainstream. And while Piatt sees that as no big deal, it's a huge deal for providers of these services. Depending on whom you ask, the total market for remote infrastructure management services is anywhere from $80 billion to $120 billion. Today,

Reader ROI

- Why infrastructure management is moving offshore
- Reasons for and against remote infrastructure management
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for traditional, large global outsourcers, less than 5 percent of revenue from infrastructure outsourcing is derived from services delivered from an offshore location back into North America or Western Europe, says Kurt Potter, research director for Gartner. But experts say that offshore take is growing at 20 percent to 30 percent annually, as global IT services providers amp up their offshore delivery capabilities and CIOs look to cut infrastructure costs. Approximately 70 percent to 80 percent of vendor IT outsourcing proposals hitting the market today contain some form of offshore infrastructure delivery of services, says Adam Strichman, senior partner of Nautilus Advisors.

Offshore vendors—particularly the bigger, Indian multinationals such as Wipro and Tata Consultancy Services (TCS)—see infrastructure management as the next big source of revenue as demand for offshore application development and maintenance stabilizes. Between 2003 and 2005, the number of offshore vendors capable of handling infrastructure tasks tripled to 15,000, according to McKinsey. In February, India's National Association of Software and Services Companies (Nasscom) published a report (compiled by McKinsey) proclaiming that up to three-quarters of all infrastructure management roles could be offshored, creating a $26 billion to $28 billion revenue opportunity by 2013, of which Indian companies could capture about half. Meanwhile, more established U.S. and European infrastructure outsourcing providers view offshore delivery as a way to compete on price with their offshore rivals and improve their own slim margins.

Competition for Your Infrastructure Dollars

U.S. and European vendors do a hefty business in infrastructure management. But with aggressive growth strategies, India's IT services providers are poised to win more.

Company	Percent of Revenue from Infrastructure Management (2006)	Annual Growth Rate
TOP U.S. PROVIDERS		
EDS	56%	7%
T-Systems	36%	4%
Computer Sciences Corp.	27%	4%
IBM	25%	2%
Hewlett-Packard	5%	6%
TOP INDIAN PROVIDERS		
HCL	12%	65%
Wipro	12%	50%
Satyam	9%	45%
Tata Consultancy Services	6%	94%
Infosys	5%	70%

SOURCE: Forrester Research

"When you think about where this work is going to be done five to 10 years from now, everyone will be going to Bangalore because ***those skills may no longer be present in the U.S."***

–INTERNATIONAL FINANCE CORP. CIO BILL PIATT

Both these legacy and emerging infrastructure services providers are counting on plenty more CIOs like Piatt willing to sign on the dotted line. "You have to get better and better at driving operational costs down so you can do more project work," says Steve Bandrowczak, CIO for Nortel. CIOs have "consolidated their data centers, rationalized their servers, implemented ITIL," says Potter. "This holds promise."

Promise, certainly, but no guarantees. While the offshoring of many infrastructure management services is possible, it is not the best choice for every company, situation or type of work. (See "How Much Can You Send Offshore," Page 39.) The risks and additional management overhead incurred when offshoring discrete projects or application development work are only compounded when sending critical, real-time operational support around the world. Issues like training and governance can be tricky. While there are some labor cost savings to be reaped by offshoring infrastructure management tasks, the limited savings may not be worth it for some IT leaders. Others may be constrained by compliance requirements or political considerations. "CIOs have to step back and ask themselves what they're trying to accomplish with infrastructure outsourcing. Cost savings? Optimization? Transformation? Efficiency?" advises Peter Iannone, head of the IT practice for outsourcing consultancy EquaTerra. "You have to take a look at the range of options, the business value and trade-offs of each."

Infrastructure Outsourcing in the Age of Convergence

Offshore or onshore, traditional systems integrators have an advantage because they've provided the equipment they manage, says Nortel CIO **Steve Bandrowczak.**

Once upon a time—as recently as five years ago, in fact—the typical infrastructure outsourcing deal involved an IBM or EDS taking over the whole shooting match (data center, machines, people) with the stated purpose of "transformation." Service providers could manage IT operations about 30 percent more cheaply because the cost of delivery was spread out among its customers and amortized over as much as a decade. Sure, customers ceded some control. But many viewed it as handing over a headache, with a cost benefit to boot. At the time, few customers would consider sending such work offshore, says Iannone: "The cost and reliability of telecom services offshore prohibited it." What CIO would have been comfortable outsourcing work to a country where blackouts were the norm and redundant systems and networks weren't?

Over the years, however, those telecom roadblocks were removed, redundancies were built into systems and tools for remote infrastructure management matured. "Customers started to look at the application development being done for 30 cents on the dollar in India, saying, If we could do that with operations, wouldn't that be great?" says Ross Tisnovsky, vice president of research for the Everest Research Institute. India's IT services providers, looking at network operation centers (NOCs), which supported application work and then sat idle 12 hours a day, saw an opportunity, too. Their logic, says Iannone: "I can continue to run this through the night, do infrastructure work for U.S. customers and make money while I sleep." The offshore vendors had little appetite for customers' expensive assets and staff that the legacy providers gobbled up as part of their deals. But no matter. They had an infrastructure management sales pitch of their own. They called it "asset-light." "They could match that 30 percent savings customers could get from the transformational deal with a legacy provider through labor arbitrage," explains Tisnovsky, without taking control of assets, rebadging any employees or really changing a thing.

Today, offshore providers are starting to compete head-to-head with legacy providers, says Paul Roehrig, principal analyst for Forrester. In their hunger for this new market segment, some India-based providers have shown more of a taste for asset acquisition than in the past—making some of their offerings more like those of legacy providers. Last year, for example, Wipro acquired U.S.-based infrastructure services provider InfoCrossing, and TCS is promising to build out its delivery infrastructure in Ohio. Meanwhile, IBM and EDS are supporting their established infrastructure deals with lower-cost, offshore labor. That data center may be in Plano, Texas, or Boulder, Colo., but the people aren't.

"If the contract doesn't spell out restrictions for offshore infrastructure support," says Strichman of Nautilus Advisors, "it's going there." (Both the India-based providers and legacy multinationals have thus far built the majority of their infrastructure management systems and staff in India, though they are expanding to other offshore locations, including Latin America and Eastern Europe.) Notes Rob Finkel, a partner in the global sourcing group at the law firm Milbank, Tweed, Hadley & McCloy: "It's hard to find a pure, domestic deal anymore." (For more, see "It's 2008. Do You Know Where Your Infrastructure Is Managed?" Page 38.)

Still, differences remain. "You can't get away from the issue

PHOTO BY JEFF WEINER

of scope and scale," says Forrester's Roehrig. Legacy infrastructure providers "have years of expertise taking on massive deals, large amounts of people and large amounts of assets. The Indian providers have good profitability, cash flow and a pretty decent growth strategy. The real question is, Can they grow fast enough to get the scale that they need to compete?" (For a list of the top infrastructure vendors, see "Competition for Your Infrastructure Dollars," Page 32.)

Winners and losers will be determined at a later date. But the movement of infrastructure management services offshore creates new options—and new challenges—for CIOs.

The Lure of (Really) Remote Infrastructure Management

"Where on earth are you?" is one of the last questions IFC's Piatt says he asks of a potential infrastructure provider. He wants to assess their domain knowledge, their experience managing the technologies IFC has chosen and the work they've done for similar organizations. "Electrons need no visas," says Piatt whose full portfolio of infrastructure support is done by a combination of onshore, offshore and nearshore resources, both in-house and outsourced. "Anyone can do this work from anywhere," Piatt says.

Even before Piatt arrived at IFC last year, the company was on the bleeding edge of remote infrastructure management adoption. The finance arm of the World Bank had signed a deal with Satyam to set up an offshore network operations center in 2003. It was successful enough that "we went through all of our services and cataloged what else could be done from Chennai," explains Zafar Azhar, IFC's information officer who manages the company's offshore relationships. "The only thing we won't let them touch is our production servers."

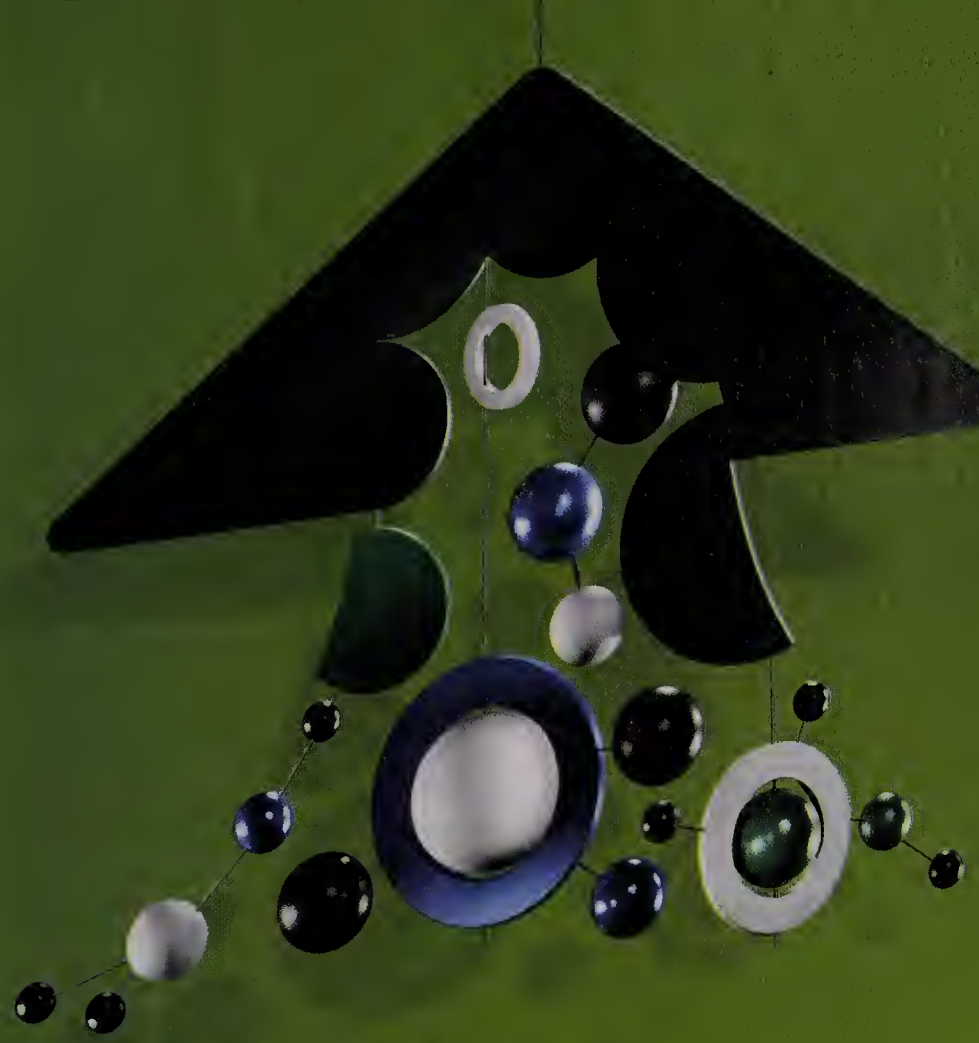
Piatt and Azhar aren't alone. One reason offshore infrastructure management makes perfect sense to some CIOs is that the technology for managing and monitoring IT operations is relatively standard. Furthermore, whether answering a help desk call or monitoring a server, processes like ITIL for managing services and Cobit for governance give service providers "a common language," says Gartner's Potter.

When Bill Maguire signed on as CIO for Virgin America

To send infrastructure support offshore, "You have to have extreme confidence in the vendor. ***Execution has to be flawless."***

–BILL MAGUIRE,
CIO, VIRGIN AMERICA

PHOTO BY SHANNON MCINTYRE



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in 2006, he knew he wanted to offshore infrastructure management. Given that the airline was in start-up mode, he didn't expect to have a big staff. Rather than fight to increase IT headcount, he opened up the bidding to U.S. and Indian vendors. "You have to consider the big guys who are good at that stuff," says Maguire, who had past experience with CSC, IBM and EDS. Ultimately, he hired Cybernet-SlashSupport (CSS), which, although it is based in San Jose, Calif., manages Virgin America's production applications, infrastructure and help desk from Chennai. IBM could have done the work offshore, too. But Big Blue cost three to four times more and, says Maguire, wanted a bigger piece of the airline's infrastructure pie. Then there was the issue of leverage. "We don't have a huge operation," says Maguire. "We'd be like a flea on an elephant's butt (with a big vendor)." Maguire also thought CSS was better able to support Virgin America's largely open-source shop. For others, a legacy provider proves the better choice for offshore support. Nortel's Bandrowczak has a NOC in India, run, not surprisingly, by Nortel Services. The company outsources other infrastructure support, including system management to HP and database administration to CSC, which provides the services from points around the globe. "Absolutely I'd consider a Wipro or Infosys or Tata. They're all great partners," he says. "It's just that the system integrators have a leg up. They know their own equipment. And we've got a lot of HP equipment."

Like most companies that outsource infrastructure management to an offshore provider, Virgin America still owns all its IT assets. Recent stateside acquisitions aside, most India-centric providers remain selective about buying their customers' equipment or hiring their staff.

That's fine with Piatt. In a traditional "asset-heavy" deal, unexpected changes in technology require renegotiation. "If someone else owns all those assets, each time you want to make a change to the network topology or server configuration, they have to reprice that contract. It's a big administrative discussion rather than a technology decision," says Piatt. With technology cycles shortening, having to bring in the lawyers every time you want to make a change "may make it difficult to nimbly respond to market opportunities," says Jim Meadows, partner in the global technology and outsourcing practice at law firm Hunton & Williams. Say you're a midsize company with Intel servers and you decide you want to move to Linux. "If you signed away your assets for seven years, you're out of luck," says Everest's Tisnovsky. "That deal has a technology road map and a refresh schedule that the vendor has amortized over seven years."

With an asset-light remote infrastructure management deal, the customer retains control. "IBM has built up very rigid operational procedures and processes over the years," says Maguire. "If I need to make a change in two hours, and I'm dealing with the big boys, it would be difficult given that overhead." Not that dynamic IT operations don't create challenges for CIOs who send infrastructure support offshore. It can be hard to keep the distant team up to speed. "As you're making changes, you have to train the remote people. Training someone 12 hours away takes much more effort," says Maguire, who ends up doing a lot of teleconferences and webinars with the offshore team. Sometimes a key CSS employee has to hop a plane from Chennai to California to learn new systems and go back to train the rest of the team.

After enduring some hiccups with Satyam early on, IFC had to bring key members of the offshore team to Washington for six months to be trained on its systems. IFC's offshore manager Azhar also learned that offshore support personnel tend to be less experienced. Some skills—like Citrix expertise—are hard to find abroad, "but all in all," Azhar says, "we've still been able to pull this off at a lower cost." IFC has even started to give the Satyam team special products like designing network infrastructure.

The Limits of Offshoring

For some IT leaders, however, sending infrastructure support offshore is a leap they're not willing to take. Even Maguire gets it. "You have to know your environment very well and you have to have extreme confidence in the vendor," he says. "If they miss something on the infrastructure side, it could cost a company millions. Execution has to be flawless."

Given uncertainty in the U.S. economy, many vendors and analysts tout the cost benefits of offshoring infrastructure work. McKinsey claims that

Remote Desktop Management: The Final Frontier

DESKTOP MANAGEMENT is least likely to be offshored for a simple reason: Sometimes an unresponsive computer needs physical resuscitation.

But that could be changing. "Tools to do more remote takeover of PCs are a lot more mature than they used to be," says Peter Iannone, head of the IT practice for outsourcing consultancy EquaTerra.

One example: Intel's new enterprise platform, vPro. The manufacturer says vPro enables hardware to respond to management commands even when the PC is locked up or powered off. *–S.O.*

More on Outsourcing Trends

Read Stephanie Overby's **"10 OUTSOURCING PREDICTIONS FOR 2008 (AND ONE TO GROW ON)"** at **www.cio.com/article/166108.**

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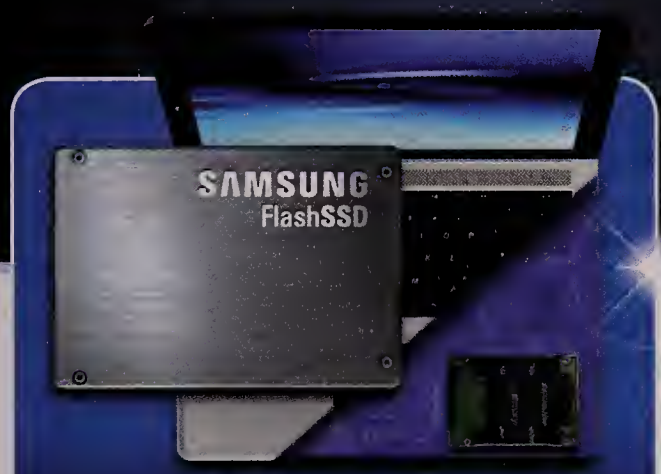
how solid is your drive?



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early adopters of infrastructure management offshoring are saving from 20 percent to 60 percent on labor costs. But labor costs are just a slice of the pie—around 20 percent of a company's IT infrastructure spend. "If you save 30 percent on labor, which is just 20 percent of the overall spend, you end up saving 6 percent on infrastructure costs," says Howard Rubin, president of consultancy Rubin Systems and an MIT researcher. "You'd do yourself more good ripping apart the whole thing and rebuilding it—especially if you're talking about moving to an offshore market, where you suddenly find turnover at 18 percent and there are geographic issues and times zone issues. That's a lot of grief to go through for 6 percent." Rubin is not anti-offshoring, but he warns that sending infrastructure support offshore is not a "one-dimension value proposition." At IFC, for example, offshore support makes sense not only because it shaves some costs, but also because the organization itself is global. "Most of our employees are plus or minus four hours from India," says Piatt, "not plus or minus four hours from the East Coast of the U.S."

Sometimes its the type of technology support that makes offshoring less attractive. IT leaders with mainframe shops are more likely to want to sign over those boxes to an outsourcer, which rules out a lot of offshore providers. "It's a stable technology, there's little innovation and its viewed as getting rid of a headache," says Everest's Tisnovsky. And it can be hard to find mainframe skills offshore.

JM Family Enterprises handles 70 percent of its business transactions on its mainframes. The $11 billion, privately held automotive services company recently renewed its infrastructure outsourcing deal with mainframe mainstay IBM. But JM Family specified in the contract that the infrastructure support stay onshore. IBM was surprised by the request, says Shawn Berg, JM Family's vice president of technology operations, but ultimately acquiesced. "IBM clearly wanted the option," adds JM Family CIO Ken Yerves. "It's a five-year contract and I'm sure over that period they'd like to make sure they could leverage that cost option."

Berg says his company wanted to have influence over who works on its account. So JM Family negotiated final say on which IBM employees support its system. Berg admits that perhaps it shouldn't matter whether support personnel are in Houston or Hyderabad, India, but it does. "We have a lot of custom code, so our support model is challenging even when the resources are in the state," says Berg. "Adding another layer of complexity with the time zone and everything else doesn't make sense." The deal makes it easier to ensure IBM employees are adequately trained and turnover is a less pronounced issue.

JM Family has contracted with both Cybage and Keane to perform application development work offshore for over a year now. But "on the application side, its easier to throw things over the wall," says Berg. In running the business day to day, "if something happens on my box, I need support on the fly." He doesn't want to wait for someone new "to ramp up." In the past, he adds, "the knowledge of JM Family was lost when someone who was working on the account left." (See "Remote Desktop Manage-

It's 2008. Do You Know Where Your **Infrastructure** Is Managed?

Your vendor's staff may be offshore, you just may not know it

IT'S WHAT ADAM STRICHMAN, senior partner of Nautilus Advisors, calls "silent offshoring"—the inconspicuous movement offshore of more and more infrastructure management tasks associated with existing long-term outsourcing deals. U.S.-based IT services providers have built up their remote support capabilities around the globe and are eager to make use of them to serve domestic customers.

"Most vendors have moved a myriad of operational functions to the far corners of the globe, often with minimal fanfare, if any," says Strichman. It's a whole new world of dispersed infrastructure services delivery. The data center may be in Tampa, but the vendor's staff may manage midrange business out of Brazil, mainframe operations from India and desktop imaging in the Czech Republic, says Peter Iannone, head of the IT practice for outsourcing consultancy EquaTerra.

The provider may save 25 percent to 45 percent on the cost of service delivery, only some of which may be passed on to the client, according to Strichman. That's not necessarily a bad thing: In some cases, time zone differences can provide increased capabilities for off-hours support. And the deal's pricing may have been predicated on the offshore delivery of services. But if your contract doesn't spell out geographic restrictions (and most older contracts probably don't), the vendor won't necessarily tell you when it moves your network management to Chennai, and you won't be able to weigh the risks and benefits of such a move. In addition, the offshoring of certain work can have larger implications. For example, most infrastructure outsourcing deals allow the client to hire vendor personnel when the contract ends. If those personnel are offshore, it may be harder to end the vendor relationship, says Strichman.

If you want to be involved in the vendor's decision to perform work abroad and have the right to veto which services move offshore and where, you should immediately negotiate an approval process for doing so, advises Strichman. *–S.O.*

ment: The Final Frontier," Page 36, for reasons why desktop management isn't often outsourced.)

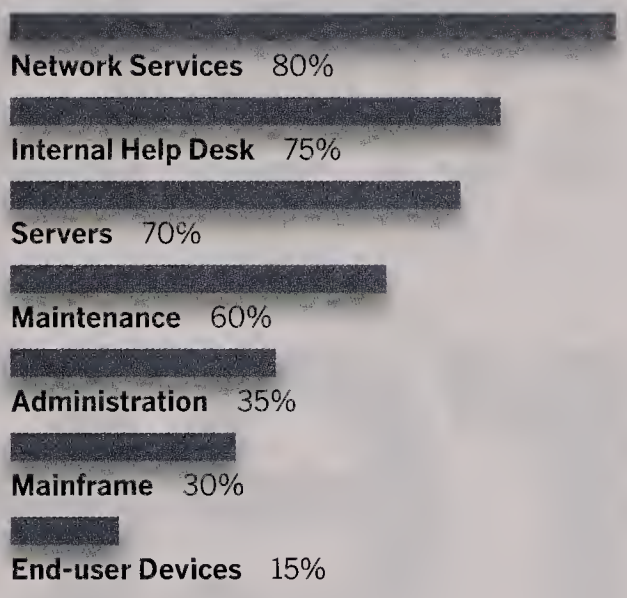
Meanwhile, some CIOs may be constrained by the compliance requirements of government regulations or industry standards. Venky Rangachari, vice president of information technology for StarCite, which provides on-demand meeting management tools, has his infrastructure managed from Shanghai. But it's handled by the company's own employees in China, as well as in the U.S. Rangachari not only wants to make sure that infrastructure administrators understand StarCite's business, he also needs to ensure they handle customer data in a way that complies with Payment Card Industry (PCI) security standards. StarCite has many Fortune 500 customers in the financial services industry. "Access to customer data, financial information and security is critical," Rangachari says. "A lot of companies that do infrastructure support may not be PCI compliant."

For others, the location of contractors is a political concern. Lynn Willenbring, CIO of the City of Minneapolis, would be willing to explore offshoring some infrastructure services. After all, most of the work that Unisys—the city's infrastructure manager—provides as part of its five-year, $48 million deal with the city is done remotely. But she says that she believes government data shouldn't leave the United States, and virtually all the work should be done by U.S. residents.

How Much Can You Send Offshore?

Some IT services are more easily shipped abroad due to skills availability and proximity requirements.

Percent of infrastructure support functions that can be offshored:



SOURCE: McKinsey

*One reason offshore infrastructure management makes sense to some CIOs is that **the technology for managing and monitoring IT operations is relatively standard.***

The Future of Infrastructure Outsourcing

In the end, the globalization of IT services may be a net win for infrastructure outsourcing buyers, whether or not they choose to take advantage of offshoring. "Offshoring is not panacea for all ills," admits Roehrig. "But companies feeling economic pressures have more options than they did five years ago. There's more capability in the market, and that's good for everyone."

India's providers are expanding in an effort to mimic their multinational forebears in infrastructure outsourcing. Some are also starting to offer infrastructure optimization consulting services, says Gartner's Potter. But the India-based vendors may exert as much influence as they receive. Eager for business, they have been known to provide customers greater insight into their business and pricing models than their Western competitors and have been more willing to tailor pricing elements in innovative ways for certain customers, says Forrester's Roehrig. Potter adds that their larger margins give them more room to be accommodating, and that this flexibility and transparency could be a positive influence on the market at large.

It remains to be seen whether in the end, Indian vendors look more like legacy infrastructure providers or vice versa. Some of the India-centric vendors will move more aggressively into the asset-heavy space, predicts Everest's Tisnovsky, while others will stay the asset-light course. "Now that the India-based providers have the ability to credibly deliver these services, it creates a very interesting market dynamic," says Roehrig. "There's a tipping point in the infrastructure outsourcing business that has not yet been reached."

As for Piatt, he has his own thoughts about where the market is heading. He's following the investment of the global services providers, and that money is flowing offshore. With IFC's business growing 25 percent to 30 percent for the past three years, Piatt is looking at how he will support that growth in the future, and all signs point to India.

His decisions will be driven by more than just cost savings. "Right now, we're in India because we can get highly qualified support from people who cost one-quarter to one-third of what we would pay people in the U.S.," Piatt says. "But when you fast forward and think about where this work is going to be done five to ten years from now, everyone will be going to Bangalore because those skills may no longer be present in the U.S." CIO

Senior Editor Stephanie Overby can be reached at soverby@cio.com.
To comment on this article, go to *www.cio.com/article/198450*.

A Little Bit Green

Green is good—and good for business. Our exclusive survey shows just how IT leaders are balancing the twin imperatives of running a profitable business and a cleaner one. BY ELANA VARON

IT is turning greenish.

That's right. Many technology leaders shrug their shoulders at the mention of climate change in conversation, or they pass on conference panels that use the "green" terminology. But in fact, according to exclusive *CIO* magazine research, technology leaders are beginning to think green. Stricter government regulations, rising energy costs and the growing awareness that sustainability is a real business concern are pushing companies to strategize how they will meet future energy demands and calls for carbon emissions data. Green IT is making inroads in the data center; CIOs are also starting to realize that's only the beginning.

Fifty-four percent of IT leaders responding to a *CIO* magazine survey about Green IT report that their organizations have environmental sustainability goals for information technology. In other words, they are trying to reduce IT's impact on the planet.

Reader ROI

:: How actively IT departments are responding to climate change

:: Examples of "green" IT initiatives

:: Challenges to meeting sustainability goals

They are motivated almost equally by social responsibility and business benefits. Thirty-eight percent say they're going green because it's the right thing to do; 37 percent say doing the right thing for the planet also helps them reduce operational costs by, for example, cutting energy consumption. A handful—only 5 percent—see sustainable IT as a competitive advantage.

For IT departments, a focus on costs—and energy costs in particular—is a logical place to start. If you pay attention to the news, you know that addressing climate change depends on rethinking energy use. Electricity is "more and more part of my overall bill that I pay as a CIO," says Patricia Lawicki, senior VP and CIO with Pacific Gas & Electric. Reducing the electric bill cuts costs and frees up funds for additional IT investments.

Few IT organizations have gone much further. Though there's plenty of media attention to calculating carbon footprints (and a few high-profile companies, like Dell and British retailer Marks & Spencer, have declared their intentions to become carbon neutral), IT leaders as a rule are not grappling with the question of their—or their companies'—carbon emissions. Among 280 IT leaders surveyed, 61 percent said they were not measuring their corporate carbon footprints right now, though 16 percent said they were preparing to do it. Only 11 percent of respondents said that their companies are not just conscious of their carbon output, but that IT is part of the calculation.

That is likely to change. Nations are negotiating a follow-up agreement to the Kyoto Protocol, which establishes global emissions limits. (The process began last December in Bali). Although the United States isn't a signatory to the original agreement, U.S. officials are participating in the new talks. Meanwhile, a 2006 California law mandates a 25 percent reduction in greenhouse gas emissions by 2020. Regional alliances of states are also developing emissions limits. And Congress is crafting national carbon regulations; many political observers consider these inevitable. Although these regulations and proposals generally target major emitters, such as power plants, they are likely to affect other businesses through higher electricity prices.

"Unless the science behind climate change develops a more optimistic view of the problem, or progress in technology development and adoption, along with behavioral changes, unfolds more quickly than expected, enterprises should anticipate that they will be motivated and forced to make significant improvements to energy and material efficiency," warns Gartner analyst Simon Mingay in a recent report.

Andrea Moffat is director of corporate programs with Ceres, a network of investors, environmental advocates and public interest organizations. She envisions that once companies begin grappling with their overall climate impact, there will be a role for IT beyond simply greening the data center. Exactly what it will be depends on the company and its industry. Some business operations will be harder to make green than others. Citi, the global financial service company, developed a business intelligence application to manage energy usage in its office buildings; greening a supply chain isn't so straightforward (see "Can You Build A Carbon-Efficient Supply Chain?" on Page 42). And many companies, Moffat says, still need to get a good handle on how much energy they use—an important step if organizations are to choose the environmental projects with the greatest benefit to both the Earth and the bottom line.

Whether they've been required to or have chosen to, both PG&E and Citi are working to do business in a more environmentally friendly way. In the process, they're learning how to use IT to balance the twin imperatives of running a profitable business and a greener one.

Goals, But No Metrics

While most IT leaders have green goals for their departments, few are able to measure progress toward those goals

54%

CIOs who have environmental sustainability goals for IT

20%

CIOs who have metrics to measure their progress

CIO RESEARCH

Beyond Greener Data Centers

Thanks to the explosion in demand for processing power, most CIOs have noticed by now that they need more energy-efficient servers. There are limits to how much electric power a given facility can sustain.

Although 56 percent of respondents to our survey said they don't monitor IT-related energy spending, 64 percent are reducing, or have plans to reduce, the energy consumption of their servers. Almost as many say that at least occasion-

ally they will purchase IT products that are energy-efficient or that are manufactured and distributed in a sustainable way.

For PG&E's Lawicki, the push to reduce data center energy consumption is motivated not only by cost—her electricity bill is growing with her data center processing capacity—but also by emissions regulations.

The largest utility in California, PG&E has a mixed environmental record. A decade ago, its $333 million settlement with residents of Hinkley, Calif., who accused the company of contaminating local groundwater, was the basis for the movie *Erin Brockovich*. Today, though the company still has critics, PG&E has worked hard to position itself as a leader in low-emissions power distribution (over 50 percent of its power comes from non-CO_2 emitting sources, including nuclear and hydroelectric). PG&E also set a goal to make its offices, service centers and other buildings "climate neutral" by 2009.

The company has also launched several programs designed to help customers reduce their energy consumption,

Can You Build a Carbon-Efficient Supply Chain?

Determining a supply chain's carbon footprint is a complicated, costly and uncertain endeavor

There's no shortage of green initiatives sprouting from corporate marketing departments. Yet while CEOs and marketing chiefs may be demanding greener operations, most supply chain execs don't know where to begin.

In a recent Forrester Research report, analyst Patrick Connaughton notes that "tightening regulatory pressure and pervasive media attention are moving supply chain sustainability issues up the corporate agenda." But, he continues, "surprisingly, very few companies are measuring the environmental impact of their supply chains today."

Then there's the nagging question of how much consumers care. "Consumers have expressed in surveys that they are interested in this," says Edgar Blanco, a research associate at MIT's Center for Transportation and Logistics. "But in the key moment of purchase, it's unclear how much more they are willing to pay. And that's what companies are struggling with."

The problem, say researchers, lies in the intricate nature of supply chains. These webs of suppliers interact with multiple partners. How does a company figure out which emissions are its responsibility? And how much will it cost to reduce them? Blanco says companies have a long way to go to fully comprehend the size of their carbon footprints.

For the supply chain, there are no reliable benchmarks for the cost of going green. Here's why. According to Blanco, a representative from an electronics manufacturer once described to him the complexity relative to the carbon footprint of its printer products: tens of thousands of parts from thousands of suppliers with thousands of partners.

Supply chains are also dynamic. Changing routes and modes of transport affect the overall carbon emitted to deliver a product. A banana from Costa Rica will take many different routes (by ship, truck or automobile) and use various energy sources (diesel for transportation, electricity for refrigeration and warehousing) before landing in the supermarket. Blanco says it isn't clear how to account for such variation.

Many public companies have begun releasing carbon emissions data. Blanco says the "carbon inventory" reports typically cover the number of employees at the company, along with buildings and vehicles and the carbon-related impact of all three. But Blanco says businesses need to go beyond "their four walls." He says several forces will push companies to make their supply chains more carbon-efficient: government regulation, societal pressure, market forces and a lack of natural resources. "These forces are aligning to make companies aware of the problem" and the need for a solution, Blanco says. But "not all corporations want to do this."

The strategic question confronting companies right now is: If we take the time to determine our supply chain's entire carbon footprint, reduce it and then share that information, will consumers pay a premium for our products to offset the expenses of such measures?

Blanco says companies are reaching out to customers on this subject. "When companies talk with most of their customers about green products, they say, I want it, but I want it for free," he says. "So companies are in the 'chicken and the egg' stage right now."

Some research suggests customers would pay more for green goods. According to Forrester, 12 percent of U.S. adults say they will pay a 10 percent premium for environmentally responsible consumer electronics products. Blanco believes that technology will facilitate the green revolution in consumer goods. To prepare, companies will need IT tools to record and analyze accurate environmental measurements, and to trace a product from factory to market. Blanco describes a "dynamic label" that will update carbon emissions and add more data about a product as it moves through the supply chain.

He says better information about a product's carbon efficiency should have a positive effect on how products are made and which ones consumers buy. "If I provide the consumer the incentive, and the company has the incentive to gain market share, then the market will start working to create the right behavior in corporations," he says.

–Thomas Wailgum

including a rebate for businesses that install energy-efficient equipment in their data centers and a "smart meter" program to measure patterns of residential power consumption. Prior to a recent server consolidation project Lawicki had her team measure the power consumption for each class server to obtain a benchmark. They measured their data center power consumption with a robotic dynamic thermal monitoring system that detects hot spots in the data center at different times of day. "This is how detailed you need to get in order to ensure you're doing it the right way," she says.

Lawicki also sees untapped potential for IT to reduce emissions by revamping PG&E's business operations, but she's still waiting for a groundswell of demand. "We're just waiting for these lines of business to come running in and say, I want to be more green," she says. PG&E's business units can use IT to optimize anything from truck routes to the wire they buy for its environmental impact.

It's not necessarily easy. "We're going to have to do a lot of work," Lawicki adds. She anticipates, for instance, that PG&E's supply chain group will ask for IT tools that will help them analyze supply decisions "based on the carbon footprint we're leaving." That means going to software providers and asking for new features that support the additional data collection and analysis.

Analysts point to supply chain management, enterprise asset management and manufacturing systems controls as the top software categories that must evolve to meet the emerging demand for energy management and carbon emissions data.

Meanwhile, according to Gartner, eight technologies are going to become critical to companies' sustainability efforts. These include applications for optimizing service and repair calls, as well as telecommunication and collaboration technologies that allow employees to work at home or reduce their travel.

Green IT Survey

For more about **WHAT I.T. LEADERS THINK ABOUT GOING GREEN**, go to *CIO*'s exclusive survey at **www.cio.com/article/197952**.

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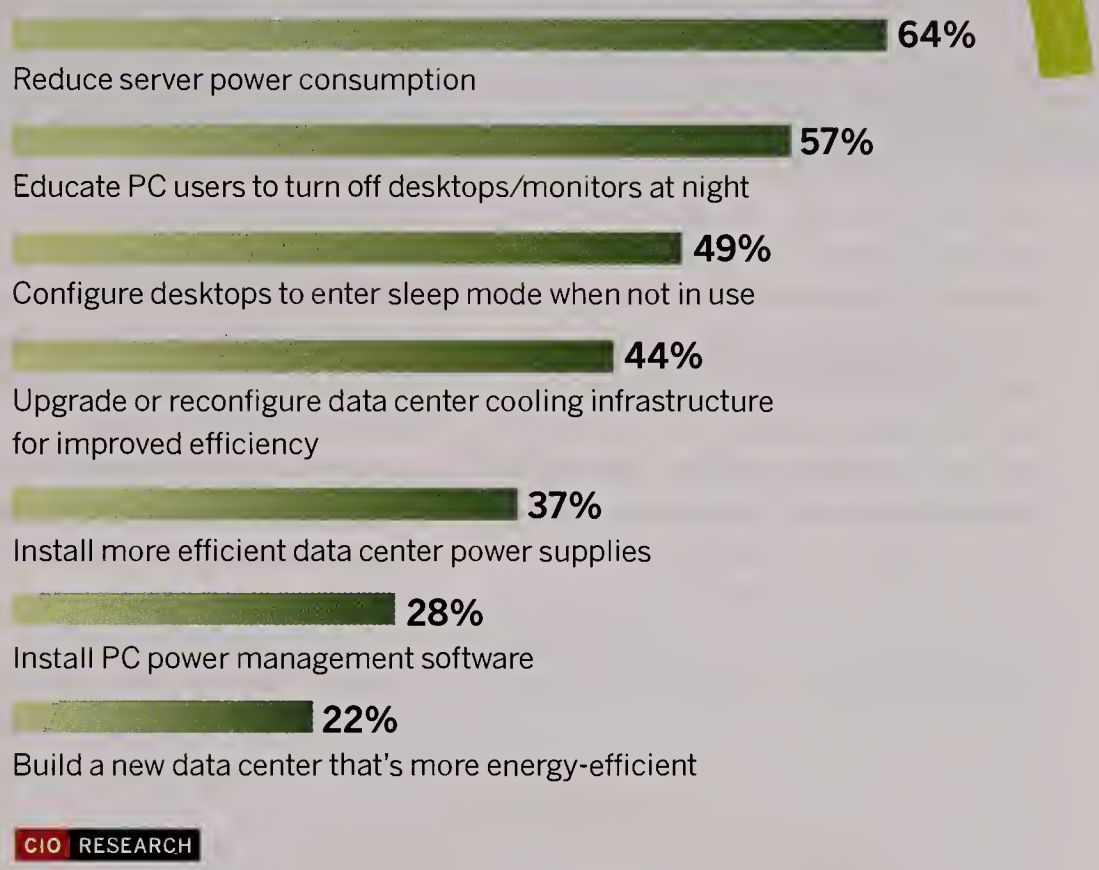
How Are You Going Green?

Here's a snapshot of the activities CIOs say they are taking to reduce IT's energy use:



CIO RESEARCH

Technology Tools for Cutting Carbon

Some companies have developed their own tools to track and manage their carbon output. When Citi Realty Services established goals for reducing its greenhouse gas emissions, it decided to look at how it could manage energy consumption more efficiently in its buildings. The initiative started as a way to go green, but it ends up saving money, too.

Citi is part of the Climate Leaders Initiative, whose members volunteer to disclose their greenhouse gas emission. When the initiative began more than six years ago, there wasn't any software that could collect and analyze energy consumption data on a global basis. So Citi built its own business intelligence tool. Today, the company collects energy data from its suppliers (including electric utilities, gas, steam and fuel oil) for more than 16,000 properties it owns or leases worldwide. It also gathers information on water consumption, recycling and waste production. The numbers are crunched to create a report on Citi's carbon emissions using conversion formulas from the World Resources Institute. But they're also analyzed according to such metrics as kilowatts per square foot and building occupancy; the company's real estate managers then look for ways to reduce their energy use.

"If we have a region that operates at a very low consumption rate, we'll want to find out what they're doing, how they're doing it and share across other regions so we can begin to find best practices," says Chris Magliano, senior vice president of the Global Sustainability Group, within Citi Realty Services. For instance,

"We're looking at a specific lighting retrofit project that was completed in a building and the impact of that on the facility's energy consumption." Other Citi facilities are preparing to pilot alternate energy sources. The data also suggests smaller fixes, most of which don't cost anything, says Magliano. At one point, Citi cut several hundred kilowatts of electricity usage by getting staff in a Manhattan facility to give up space heaters under their desks. The office thermostat was set to keep computer equipment on one of its trading floors cool, but workers' feet were freezing. Property managers adjusted the building's climate control systems so the machines wouldn't heat up but employees could be comfortable—a counterintuitive choice that wouldn't have made sense without the data to back it up. "The tool let us go back and verify the effect of changes that we made," says Magliano.

Citi does not report how much money it saves from its energy-efficiency initiatives. Lois Grobert, Sustainable Real Estate Operations Manager, Citi Realty Services, says there's no business reason to convert local savings to dollars. Energy expenses are also hard to define because they're often embedded in building rental charges, says Magliano. Nevertheless, says Grobert, "there's no downside to saving energy."

Citi has promised to cut its greenhouse gas emissions 10 percent from 2005 levels by 2011. But interpreting its progress isn't completely straightforward. In the first two years Citi reported its emissions—2005 and 2006—the company's total energy consumption and its carbon emissions increased. Energy consumed per building occupant—a way to measure the rate of energy use—declined less than 1 percent, while carbon emissions per occupant remained the same.

Grobert says Citi has made progress, but that different numbers tell different stories. For instance, she explains, energy consumption rose during the year because the company opened more offices.

"We cut this data many different ways to see where our progress and where are challenges are," she says.

How Do You Know When You're Really Green?

As the initiatives at both PG&E and Citigroup suggest, it makes a difference whether sustainability goals have corporate backing. Too often, CIOs who think green get neither credit for saving money when they cut energy costs, nor points for meeting environmental goals.

"It's definitely a big dilemma," says Ceres' Moffat. In fact, 80 percent of survey respondents say they have no metrics to measure progress toward greening IT.

Moffat notes disconnects between IT and facilities managers, travel managers and other business leaders that make it challenging to assess the results of any environment-related technology investment. "You need to gather the folks that are procuring the technology with the folks that are paying for the energy bill."

Serious change also depends on more energy-efficient hardware and software, along with metrics to judge whether they are worth the investment. Though major hardware vendors continue to introduce products from servers to power supplies that they say are more efficient, the metrics to measure their impact are immature.

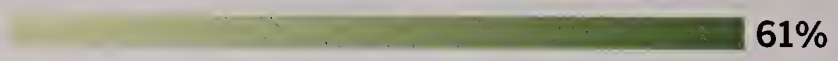
Larry Vertal is senior strategist with chip maker AMD and a director of The Green Grid, a global consortium dedicated to advancing energy efficiency in data centers and business computing ecosystems. Vertal observes that many CIOs are doing "basic housekeeping." But he thinks they're holding back on new investments to avoid becoming locked in to any one vendor's solution. "There is a bit of wait and see and it's largely dependent on metrics CIOs feel they can be confident in."

"There's a trend to put a green label on something," says Lawicki. "What we're trying to get to is where we can actually measure the stuff. What did you really save? And what does it really mean?" CIO

Executive Editor Elana Varon can be reached at *evaron@cio.com*. To comment, go to *www.cio.com/article/196450*.

Lots of Talk But Little Action

Few IT leaders are calculating carbon footprints despite the buzz around doing it.



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Me, Myself & I

Even as they become corporate leaders, some women remain averse to promoting themselves to advance their careers. Five women leaders share advice for getting recognition—tips that work for everyone.

BY ESTHER SCHINDLER

Reader ROI

:: Why marketing yourself is important to your career
:: Ideas for networking beyond IT
:: Ways to get personal recognition by promoting your team

Career advancement requires IT professionals to engage in a little marketing. You want the interest and attention of others and, over time, you want to earn their respect and trust. Reputation is everything for any IT executive, and it's important to get it right.

However, some women must overcome aversions to self-promotion, conflict and voicing their opinion—an extra challenge, sometimes, in a profession where their colleagues are mostly men. "This has been difficult for me," admits Denise Stephens, the director of IT and CIO at Washington Savannah River Company. "I must consciously conquer my natural tendency to hold back when interacting in conflict situations." Women can worry—occasionally with reason—that they'll be negatively labeled if they are assertive and speak out. "I keep this in mind but do not let it hold me back," says Stephens. "I have rarely seen women penalized by these labels if they get the job done."

Your career is in your power. Yet some women build their own glass ceilings. "They don't think they can network or communicate on the same level as their male peers

or management," says Janis O'Bryan, CIO and senior vice president of IT at Hudson Advisors. "Get over it. If you are good at what you do, and a professional, you can compete for the next level."

Here are four ways to make your mark—and make sure others know it. These best practices for self-promotion apply to everyone, not just women. And they work whether you're looking for a promotion from divisional CIO to an enterprise assignment, for a move to a larger company or to another role in the C suite. It's also good advice to keep in mind as you mentor and evaluate your managers for their next career move.

"Your **reputation** and your **character** are what sell you for the next big job."

–MAGALENE POWELL-MEEKS, DEPUTY CIO, JET PROPULSION LABORATORY

Volunteer for Visible Assignments

You want to be appreciated and acknowledged for making a difference. That means you have to do something that is visible and also gives you the opportunity to shine.

Take charge of something that people need done, advises Magalene Powell-Meeks, Deputy CIO at Jet Propulsion Laboratory (JPL). "Put yourself in the position of solving a problem, and solve it," she says, by applying your unique technology or process. Do it even if the job is undesirable, and become the go-to person in your discipline.

You're building career momentum, and that's more important than a fancy title, says Powell-Meeks. By helping your customer (whether that customer is internal to the company or an outside user), you build trust with your customer base—a big key to advancement. "Your reputation and your character are what sell you for the next big job," Powell-Meeks says.

Sometimes you have to stretch yourself and take on a role that scares you. Elizabeth Austin, vice president of IT Operations and Infrastructure at Family Dollar, believes her openness to new challenges offered her interesting opportunities to work in a variety of roles with each of her employers. "Many of the roles have been nontraditional for women," she notes. "I've worked in construction and manufacturing business applications implementation and support roles."

Don't wait for opportunities to come to you, either. If there's no obvious way to gain recognition in your day-to-day work, find another way to contribute. Cindy Hughes, CIO of Maryland Automobile Insurance Fund, volunteers for corporate presentations; she speaks to outside groups about the company or about what is going on in her department.

Stephens says, "Work can be like sports. As people are picking their teams, they want the known players who deliver. Become known as a player who delivers, and your opportunities will grow."

Reach Outside IT

As IT staff everywhere know far too well, when IT is working, it's invisible. To be noticed, you have to walk outside the data center.

Stephens urges ambitious women to volunteer for assignments that provide opportunities outside their usual working relationships. "This could be working on an enterprisewide initiative or on something focused in another discipline," she explains. When Stephens was an IT manager at a different company, she developed a section of her corporation's application for the Malcolm Baldrige National Quality Award. "Although my assigned section had an information systems theme, working on this enterprise team exposed me to diverse functions and people throughout the corporation," she says.

What's more, such projects help you do your job effectively—it can't hurt to develop a cross-functional perspective on company goals, strategy and culture—as well as build your reputation as someone who gets things done. Meanwhile, you set yourself apart from typical IT professionals, who merely focus on their specific assignment and technical discipline.

Case in point: Early in Stephens's career, she took the opportunity to work on initiatives outside of IT, for the marketing and sales arm of the company. "I became known within that circle as someone who did whatever was necessary to support the customer and their marketing efforts. The relationships I formed led to more opportunities."

Says Hudson Advisors' O'Bryan, "If your management and peers trust your judgment and you deliver on your promises, you are 80 percent there [toward a promotion]. The rest is relationships. Make time to get out of your office, use the phone or travel to network with the other people in the company. It is important to build relationships with all levels."

Put an "I" in "Team"

It's one thing to achieve or exceed your goals—but you won't move ahead unless others notice the accomplishment.

Personal ambition aside, it's important to communicate what you and your team have done, especially given IT's tendencies toward invisibility to the rest of the enterprise. Nor is the challenge to find effective communication methods unique to gender, points out O'Bryan. "[At] a financial company, the key was 'speaking the language of the business.' This is the current buzz phrase in our industry, but it worked long before it became popular to say."

So while it may be—or at least feel—rude to toot one's own horn, publicizing the accomplishments of your department supports your team and helps the

"I've missed some opportunities in the past when I hesitated to reach beyond my **comfort zone** or **waited for others** to provide them for me."

–ELIZABETH AUSTIN, VP OF I.T. OPERATIONS AND INFRASTRUCTURE, FAMILY DOLLAR

business learn what you're doing for the enterprise. One not-so-subtle result is that executives notice who's leading such successful teams and give the managers of those teams (such as you) more opportunities. Think of it this way: You gain visibility by giving it to others.

Powell-Meeks has taken the step of creating her own branding. She regularly distributes communications to her customers, such as an annual report to key stakeholders to show what the IT department accomplished. These reports include tangible milestones—and serve to summarize and remind people about the benefits IT can provide. How often you distribute your reports depends on your job. O'Bryan's department, as part of a financial services company, provides quarterly IT financial reports for the CFOs of each office worldwide, as well as quarterly peer comparison spending reports, an annual IT report and quarterly newsletters to promote the benefit of IT to the business.

Savvy women know that promoting their team is also a self-promotion and leadership opportunity. O'Bryan writes an opening statement for her newsletters and annual reports, and includes her picture. "As our company grows, not everyone may know who I am—and I think it is important that they do."

Brand building works downward as well as upward. While it's important to connect with people who can get you noticed and promoted, some women have gained the most by taking care of the people who work for them.

Hughes was once was a midlevel manager who had recently been appointed to head a unit that was troubled and underperforming—and one that no one really wanted to run. She got to know each of the 32 people in the group. "I acquired a sense of their technical skill levels—as I'm sure their prior managers had done, as well. But I also got to know them as individuals," she says. Within three days, Hughes knew each team member by name and throughout her tenure, spoke with them daily (if briefly). "There were lots of interesting stories in the group, and I tried to hear as many of them as possible. I guess it had a pretty positive impact, because the group's productivity increased measurably, and senior-level management noticed! My work with this particular group provided me a springboard into upper-management promotions."

Be Assertive—But Not Pushy

Emphasizing the team's achievements is so important that if you don't do it enough—while aggressively promoting yourself—people may tune you out.

Powell-Meeks has known women who are very talented, want to get ahead and probably are CIO material. They may be very smart technically, but, Powell-Meeks says, are always promoting themselves and putting down management for not recognizing them. The result, unfortunately, is that everyone just wants such women to go away. If someone is "complaining about her own team, she won't get promoted" says Powell-Meeks, while bad-mouthing her management ensures that nobody else wants her, either. So, how do you strike a balance between assertiveness and a perception that's far less savory? It depends on where you work, cautions Powell-Meeks. "Learn the corporate culture. Let that guide how you express yourself."

Still, be yourself. Some women, says Powell-Meeks, need to be told to say what they think. "I speak up in meetings, offering my ideas and opinions. I guess the secret there is to be straightforward and direct. A long time ago, I used to think it was important to 'follow the company line,' no matter what. I learned over time, however, that it's better—and I get attention—if I just relax and be who I am and say what I think."

Know your strengths, and use them to your advantage. "Through understanding my own strengths, weaknesses and preferences, I have been able to optimize them in seeking opportunities," says Family Dollar's Austin. "For example, I prefer roles combining management, customer-service focus, ongoing learning and problem solving."

And don't limit yourself. "I've missed some opportunities in the past when I hesitated to reach beyond my comfort zone or waited for others to provide them for me," says Austin. "You have to believe in yourself, define what your goals are, then develop the relationships and opportunities for realizing them." CIO

Senior Online Editor Esther Schindler can be reached at *eschindler@cio.com*. To comment on this story go to *www.cio.com/article/165150*. The women featured in this story are members of the CIO Executive Council, a professional association of IT leaders founded by *CIO*'s publisher.

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Business Transaction Management

IT and business align around transactions

Ken Blackwell, DIRECTOR OF PRODUCT MARKETING, HP

Ken Blackwell is the director of product marketing within the business technology optimization (BTO) products organization in HP Software. He started at HP in March 2007 with the Bristol Technology acquisition. He was a founder and chief technology officer of Bristol and led the development of TransactionVision, now HP Software's lead product in the business transaction management market.

What business executives truly eare about is the performance and continuity of critical business transactions—and they expect IT to make it happen. That, says Ken Blackwell, director of product marketing at Hewlett Packard, means IT must align itself with business objeetives. Read on for more insight on business transaction management (BTM).

What does BTM mean?

BTM is core to enabling alignment around what the business really cares about and what both IT and the business user understand, which is the transaction. It's about ensuring the performance and continuity of transactions across different tiers of the enterprise and, in turn, addressing the complexity of IT alignment with the business. The automation of business transactions has brought huge benefits to the business, but in the process they have lost their visibility into business transactions. BTM gives them back this visibility.

What's typical of business transaction management in the real world?

One of the best examples is high-value payment processes in the wholesale banking industry. These tend to be complex transactions that take several hours and span many tiers of the enterprise; and they often involve billion dollar payments so the risk exposure is signifieant. However, this concept really applies to any industry, with the common thread being eomplex transactions of significant business impact.

Why should organizations embrace BTM?

BTM is the next step in the evolution of business service management (BSM), a eoncept that helps IT strategically foeus its operations on business outcomes. Many customers are already working toward business optimization and alignment with the adoption of BSM. BTM gives you the higher-level abstraction you need to take that next step, so that you're not just isolating a problem down to the user or application set that is affected, but rather looking aeross multiple IT tiers and performing business impact analysis that lets you report to the business decision makers in terms they understand.

How does BTM fit with existing technology investments?

BTM builds on your existing investment in BSM. It depends on and complements infrastructure discovery, mapping and customer experience monitoring, and starts to tie all these things together by layering on top of what you already have.

Some of the technologies in this market are coming from niche players that have difficulties tracking individual business transactions across all the different tiers of the enterprise. The ability to go both broad and deep puts HP in a unique position.

Where do you see the evolution of BTM going?

In the short term, BTM will be about integrating this advanced tracking capability with other BSM tools. From HP's perspective, we are focused on delivering a complete solution, with a minimal time to implementation and quick time to value. Longer term, we see BTM building synergies that speak directly to business needs. We're talking about horizontal technology at the core, with the ability to build templates, best practices and consulting solutions that address very specific vertical challenges, such as activation of cell phones or high-value banking payments. It's about harnessing the power of BTM to align IT and business objectives and solve industry-specific problems.

The automation of business transactions has brought huge benefits to the business, but in the process they have lost their visibility into business transactions. BTM gives them back this visibility.

FOR MORE INFORMATION:

Download an IDC Technology Assessment white paper, **"Business Transaction Management: Another Step in the Evolution of IT Management,"** at **www.cio.com/whitepapers/btm**.

For more on HP BSM and HP BTM, go to **www.hp.com/go/bsm**.

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How to Become One With Your Business

Humana CIO Bruce Goodman learned how to reap financial results from IT by understanding in detail the ways his company makes money

When I started in IT at MetLife in 1970, my background was as far away from insurance as you could possibly imagine. I was an engineer and had studied toward a doctorate in solid-state physics. I decided that to succeed, I had to understand what made the business go and what contributed to the top and bottom lines. So I took the same courses that somebody who sells the product needed to take, and I passed 10 different exams to become a chartered life underwriter. Once I understood how we created and sold insurance products, I knew I could use IT to influence business results.

This orientation toward business results—driving new sales and productivity, increasing customer retention, reducing administrative costs and increasing profit—became my success formula for creating value with IT. MetLife was the first large life insurance company to automate its sales offices, and it gave us a competitive advantage. At the time, a lot of people were skeptical of the initiative, but because of my knowledge of how agents made sales, I was able to make the case to the executive vice president of individual insurance operations of how different the world would be if we took advantage of then-emerging minicomputers to move systems out to the sales offices.

It's All About the Numbers

By far, the largest expense in the insurance business is paying claims. The question becomes, How can IT help the business drive that cost down? When we do so, we drive those savings right to the bottom line.

For a health plan like Humana, we accomplish this by providing integrated tools that offer transparency to patients about their healthcare utilization, its costs, and options they can discuss with their doctor (such as the potential to switch to a lower-cost, generic drug). We implemented an IT-enabled program called Maximize Your Benefits, which creates value both for our members and the company. We use outbound automated calling, personalized monthly statements and pop-up customer care screen alerts to advise our members on opportunities to switch from a brand-name medication to a lower-cost generic.

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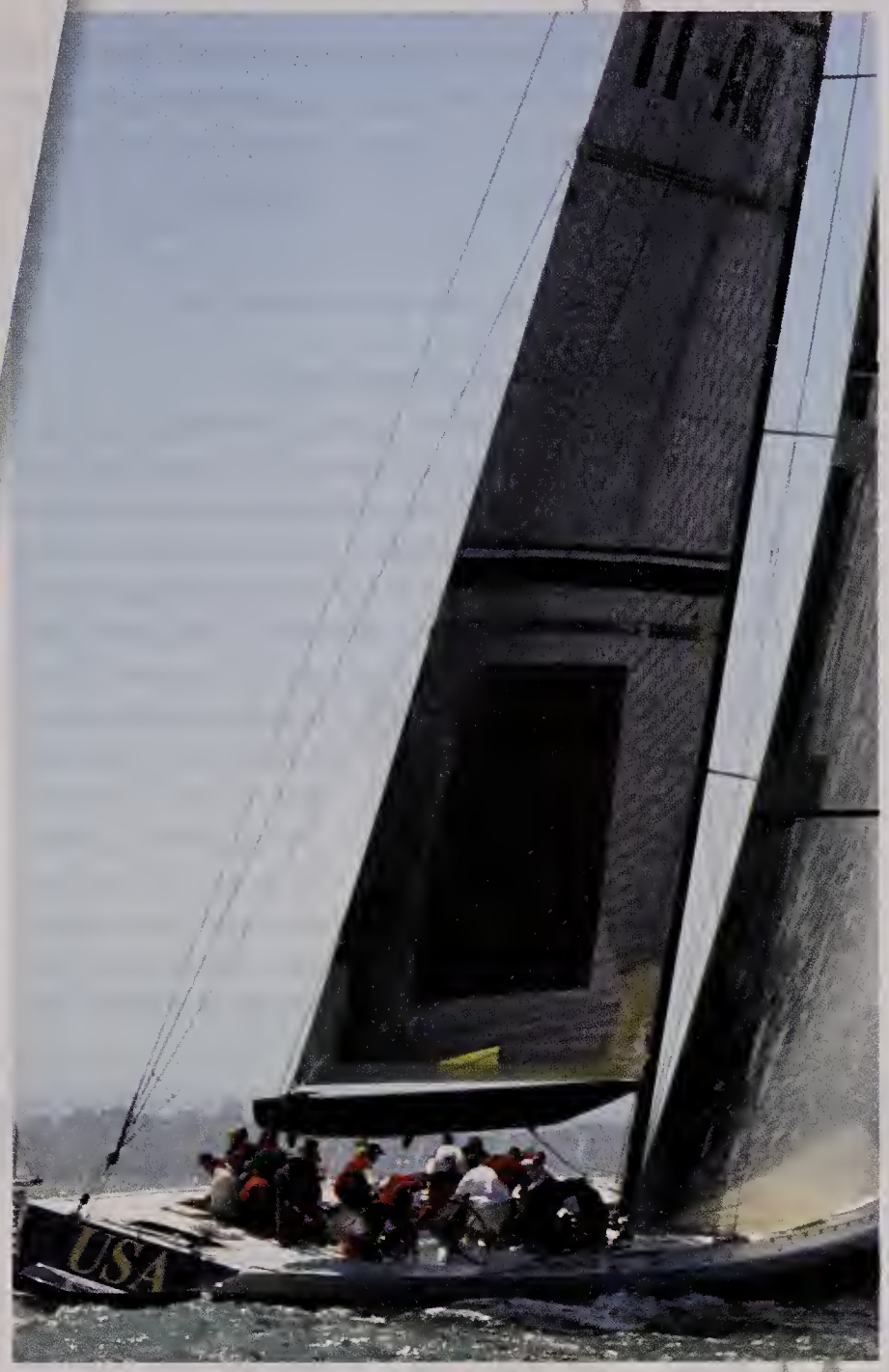

The greatest test of leadership comes in times of profound change. For the IT professional and your role in the enterprise, the next few years will bring unprecedented opportunities in business, technology and staffing, putting you once more in the crucible of change. Attend the CIO Leadership Event and walk away with the tools needed to tackle these opportunities head on.

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Learn How to Run a Business

How do you learn to key into business drivers and results? Probably the best training is to run a P&L yourself. When I had gone through a few different IT roles at MetLife, the folks there said to me, If you want to be CIO of the company, we want to see you run a business for two years first. They gave me a business that was losing money and told me to make it profitable. If I succeeded, I'd get to be CIO (and that's what happened). Through that experience, I learned firsthand the pressures of responsibility for business results and what it takes to make a business viable and healthy.

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Short of running your own business, you could run your IT organization as a business within a business. Deliver IT services, pitch your products, make your numbers. You may never sell your company's product, but you should understand selling and budgeting. You should also report to the CEO and have a seat at the table. As a member of the Humana executive committee, I hear about all the important issues the company is facing. While I'm listening I'm thinking about and responding with ideas for how IT can help. If you aren't at executive committee meetings, you can get yourself on the distribution lists for internal reports about business results, and you can network with your fellow businesspeople to understand their issues.

If you report to the CFO, you can still cultivate a business-results focus. In fact, this is an area of common ground with your boss since the CFO is the master of business results. At Humana, if we in IT have an idea, we have one of our financial analysts within IT review its potential costs and benefits and determine what the results of a pilot would need to be to justify further investment. If you don't have your own financial people, borrow one from the CFO's organization. Then the CFO will know you are serious about finding out whether your ideas make business sense.

The bulletproof vest of the IT action hero.

Get Results, Help Your Career

I have no doubt that business competency and a focus on results is a boon to any IT executive's career. First, it makes a huge difference in how the CEO views you. If the CEO sees the IT head as a technologist who is not an active partner in trying to achieve business results, that CIO is probably not going to have a long-term future at that company. He'll get out of step with business goals and people will complain that they can't get what they need out of IT.

Second, a strong results focus positions you for further opportunities. In addition to my CIO role, I also run the entire service operation at Humana, a combined organization of about 10,000 people. The services group is responsible for controlling administrative costs and also, through operation of our call centers, has a big impact on customer retention.

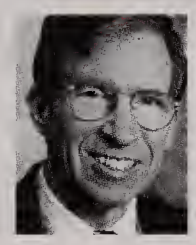
I got this role because I made the case that if IT and service operations reported to the same person, we'd work better together to define priorities and deliver systems that drive results. In companies where IT and services are separate, IT is only responsible for delivering the project while the operations group is responsible for requirements and deriving the value. That can lead to finger-pointing if the payoff doesn't go as expected.

How do you learn to key into business drivers and results? Short of running your own business, you could run your IT organization as a business.

One word of caution: It's possible that a CIO can become so business-focused that he or she doesn't pay enough attention to executing reliable IT service. You have basic blocking and tackling responsibilities that you can't ignore. You can delegate that, but you still have to ask the right questions of those to whom you delegate and make them show you their metrics.

Looking back at my career, there are three things that I believe have been essential to my success: understanding business processes, knowing where the leverage points are to improve top- and bottom-line performance, and developing strategic partnerships with the business. By focusing on these areas, any CIO is positioned to fulfill a strategic role. CIO

Bruce J. Goodman is senior vice president and chief service and information officer at Humana, and is a member of the CIO Executive Council. To comment on this article, go to *www.cio.com/article/186550*.



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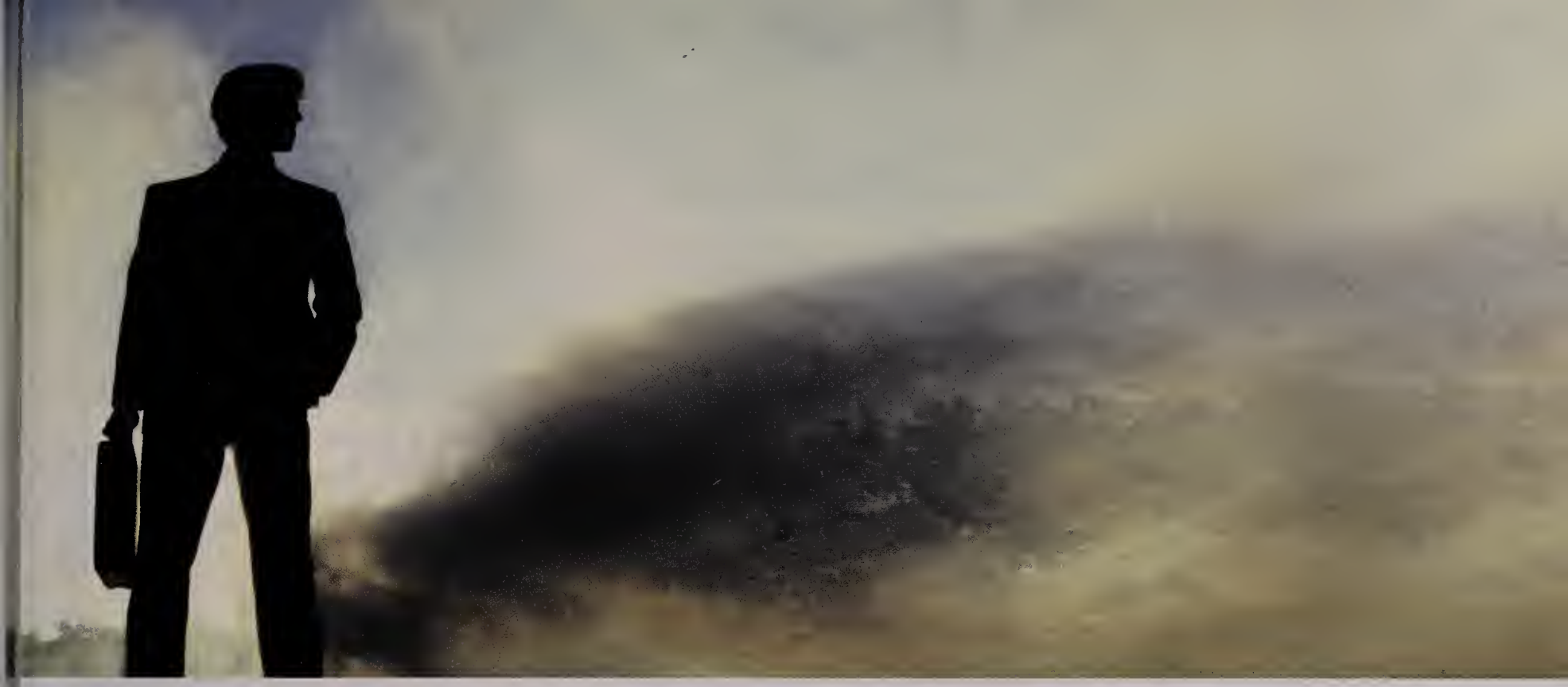

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DATApoints

COMPILED BY JARINA D'AURIA

STAFFING DOUBLE-TALK

58%

of C-level execs say they don't have enough in-house IT staff.

(Independent IT Governance Institute)

13%

of CIOs plan to hire new staff in 2008.

(Robert Half)

OFFSHORING: NOT WORTH THE HEADACHE

[94%]

of U.S. companies outsource IT domestically only.

[59%]

cite management challenges as the top reason.

(Robert Half)

THE STEADY MARCH OF VIRTUALIZATION

By 2010, at least **30% of non-desktop IT infrastructure** such as servers and storage will be virtualized.

(Saugatuck Technology)

What You Do With Old Computers

[54%] of IT leaders frequently recycle or otherwise dispose of IT equipment in a way that's environmentally safe.

[20%] seldom or never bother.

(CIO Research)

Mobile Broadband ON THE MOVE

Number of computers using **mobile broadband** connections to surf the Web:

[2.2 million]

(comScore)

ERP'S STAYING POWER

[54%]

IT organizations worldwide that plan to upgrade their SAP systems in the next two years.

(Gamma Enterprise Technologies)

Not Worried About the Economy

CIOs in Asia expect to **increase their IT budgets 8.3%** this year. Worldwide, technology budgets are **up 3.3%**.

(Gartner)

19%
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